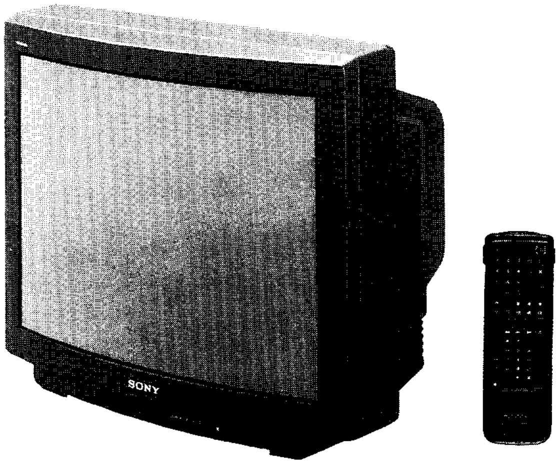
SERVICE MANUAL

AE-1C CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-M2901E	RM-816	Spanish	SCC-F12K-A



MICROFILM

TRINITRON® COLOR TV

SONY®

Television system.	B/G/H
Colour system.	PAL/SECAM,NTSC3.58,NTSC4.43
Stereo system.	GERMAN stereo.
Channel coverage.	VHF: E2-E12 UHF: E21-E69 D/K : VHF: R01-R12 UHF: R21-R69 CABLE TV (1) : S1-S41 CABLE TV (2) : S01-S05, M1-M10, U1-U10.
Picture tube.	Hi-Black Trinitron tube Approx. 72 cm (29 inch) (Approx. 68 cm picture measured diagonally) 110°-degree deflection
Rear Input/Output Sockets :	⊖ 1/ 21-pin Euro connector: (CENELEC standard) inputs for Audio/ Video signals and RGB. Outputs for Audio and Video signals. ⊖ 2/ ⊖ 21-pin Euro connector: inputs Audio / Video and S-Video signals. ⊖ Audio output (variable) - phono jacks

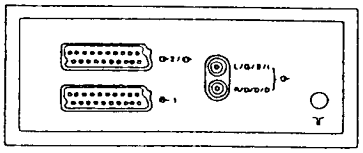
Front Input/Output Sockets.	⊖ Video input - phono jack. ⊖ Audio inputs - (L,R) phono jack Headphone jack output : stereo mini jack.
Sound output.	2 × 15W (Music))
Power consumption.	114Wh
Dimensions.	Approx. 656 × 554 × 512mm (w/h/d)
Weight.	Approx. 52kg
Supplied accessories.	RM-816 Remote Commander (1) IEC designation R6 batteries (2)

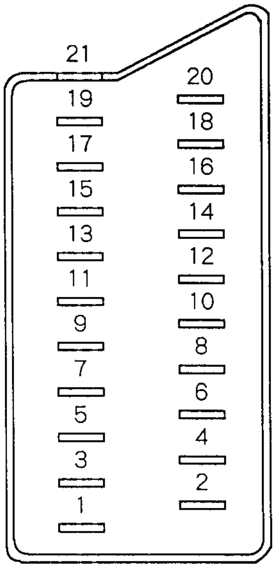
[RM-816]

Remote control system	infrared control
Power requirements.	3V dc 2 batteries IEC designation R6 (size AA)
Dimensions.	Approx. 75 x 221 x 23mm (w/h/d)
Weight.	Approx. 230g (including batteries.

Design and specifications are subject to change without notice.

21 pin connector (⊖1 ⊖2)





Pin No	1	2	4	Signal	Signal level
1	○	○	○	Audio output B (right)	Standard level : 0.5Vrms Output impedance : Less than 1kohm *
2	○	○	○	Audio input B (right)	Standard level : 0.5Vrms Input impedance : More than 10kohms *
3	○	○	○	Audio output A (left)	Standard level : 0.5Vrms Output impedance : Less than 1kohm *
4	○	○	○	Ground (audio)	
5	○	○	○	Ground (blue)	
6	○	○	○	Audio input A (left)	Standard level : 0.5Vrms Input impedance : More than 10kohms *
7	○	●	●	Blue input	0.7 ± 3dB, 75ohms, positive
8	○	○	○	Function select (AV control)	High state (9.5 – 12V) : Part mode Low state (0 – 2V) : TV mode Input impedance : More than 10kohms Input capacitance : Less than 2nF
9	○	○	○	Ground (green)	
10	○	○	○	Open	
11	○	●	●	Green	Green signal : 0.7V ± 3dB, 75ohms, positive
12	○	○	○	Open	
13	○	○	○	Ground (red)	
14	○	○	○	Ground (blanking)	
15	○	–	–	Red input	0.7V ± 3dB, 75ohms, positive
	–	○	○	(S signal) croma input	0.3V ± 3dB, 75ohms, positive
16	○	●	●	Blanking input (Ys signal)	High state (1 – 3V) Low state (0 – 0.4V) Input impedance : 75ohms
17	○	○	○	Ground (video output)	
18	○	○	○	Ground (video input)	
19	○	○	○	Video output	1V ± 3dB, 75ohms, positive Sync : 0.3V (– 3, +
20	○	–	–	Video input	1V ± 3dB, 75ohms, positive Sync : 0.3V (– 3, +
	–	○	○	Video Input/Y (S signal)	1V ± 3dB, 75ohms, positive Sync : 0.3V (– 3, + 10dB)
21	○	○	○	Common ground (plug, shield)	

○ Connected ●unconnected (open) * at 20Hz – 20kHz

4 Pin connector (⊖)

Pin No	Signal	Signal level
1	Ground	
2	Ground	
3	Y (S signal) input	1V ± 3dB 75ohm, positive Sync $0.3V^{-3}_{+10}$ dB
4	C (S signal) input	0.3V ± 3dB 75ohm, positive

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CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

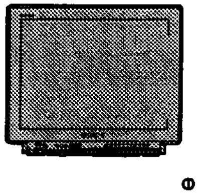
COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND, IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

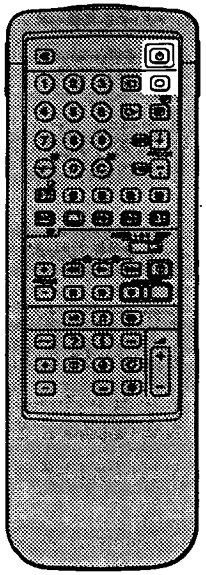
SECTION 1
GENERAL

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remein as in the manual.

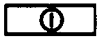
1-1. Switching on/off

After you have completed the basic preparation your TV is ready to be connected to the mains power supply (220/240V AC, 50Hz).





How to turn the TV on

Action	Result
Press ⏻ on the TV. 	The TV will turn on. **Note:** If the screen remains blank, the TV may be in the standby mode. Press □ to switch it on.

How to turn the TV off

A Temporarily	
Press ⏻ to enter standby mode.	The TV will be in standby. To return to the TV mode press □
B Completely	
Press ⏻ on the TV.	The TV will turn off.

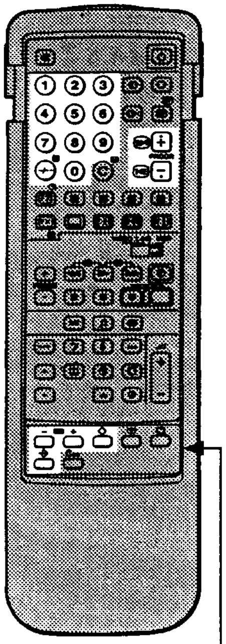
1-2. Presetting

After you have installed this TV you need to preset TV channels.

TV stations broadcast their channels at certain frequencies. You must preset these channels to programme numbers on this TV before you can watch the TV programmes.

There are 60 spaces for storing these channels.

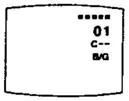
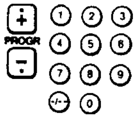
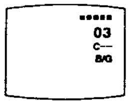
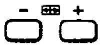
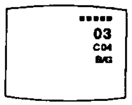
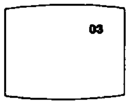
Slide open the full function side of the remote commander to reveal preset buttons.

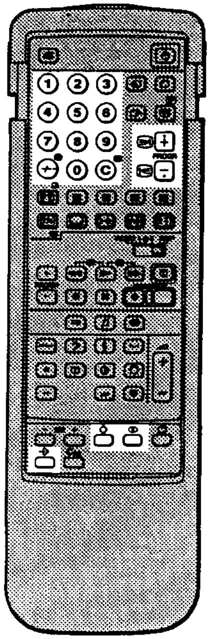


Note: These buttons should be used in preset mode only.

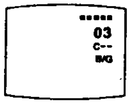
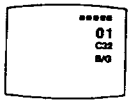
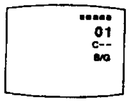
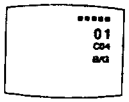
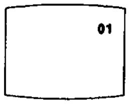
How to preset channels automatically

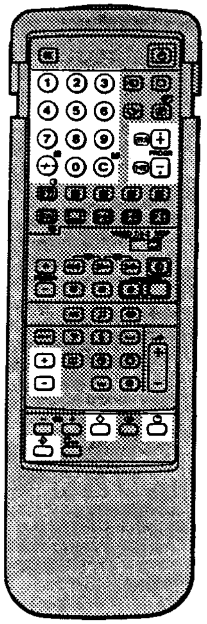
If you are unfamiliar with the channel numbers of the stations you wish to preset, use "How to preset channels automatically". If you are familiar with the channel numbers refer to "How to preset T.V. channels directly".

Action	Result
1 Press ⇨ to enter the preset mode.	 The programme number will start flashing.
2 Press PROGR + or - or the number buttons to select the programme number to which you want to preset channels.  **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	 The programme number changes
3 Press ⊞ + or - once to search forward or backward for channels. 	 When a channel is tuned in, the search will stop. **Note** If you want to skip a channel, press ⊞ + or ⊞ –.
4 Press ◇ if you want to store the channel which is tuned in. Press ⇨ to exit preset mode without storing.	 The channel is now stored and you have returned to TV mode.
5 Repeat steps 1 to 4 to store the other channels.	



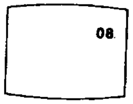
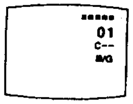
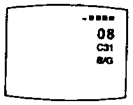
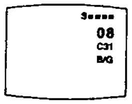
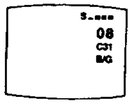
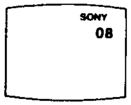
How to preset channels directly

Action	Result
1 Press ⯑ to enter the preset mode.	 The programme number will start flashing.
2 Press PROGR +/– or the number buttons to select the programme number on which you want to preset a channel. **Note** To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	 The programme number changes.
3 Press C. If you want to select a cable channel, press C twice.	 The indication "C--" ("S--" for a cable channel) starts flashing on the display.
4 Select the channel number with two digits (e.g. 04) by pressing the number buttons. **Note** Press the second number within 5 seconds after the first one, otherwise the operation will be cancelled.	 The channel number changes. **Note** If you have made a mistake the letter "X" will appear. Repeat step 4 again.
5 Press ◇ to store the channel which is tuned in. Press ⯑ to exit the preset mode without storing.	 The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 5 to store the other channels.	



How to Name a Station

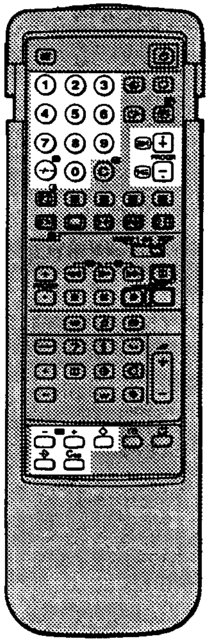
You can use up to five characters to "name" a channel or station (i.e. BBC1).

Action	Result
1 Select a programme number you want to name by pressing the PROGR +/– or the number buttons	 The selected programme number will appear.
2 Press ⯑.	 The programme number starts flashing.
3 Press ▭.	 The first column of the station name indication will start flashing.
4 Press + or – to select a letter in the alphabet, a number, or a blank space.	 The letters of the alphabet, numbers and the space ("–") will appear sequentially.
5 Press ▭.	 The first character is now set and the second column will start flashing.
6 Repeat steps 4 and 5 to set each letter.	
7 Press ◇.	 The channel is now stored and you have returned to TV mode.

How to tune in a channel temporarily

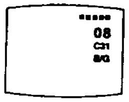
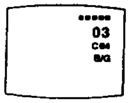
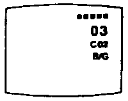
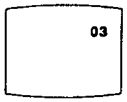
You can tune a channel in temporarily, if it has not been preset.

Action	Result
1 Press C. For cable channels, press C twice.	The indication "C" ("S" for cable channels) appears on the screen.
2 Select the channel number with two digits by pressing the number buttons (e.g. for channel 4, first press 0, then 4.)	The channel is received, but it is not stored to any programme number.



How to Skip Programmes

Using the PROGR +/– buttons you can skip unused programme channel numbers. However, the skipped numbers may still be called up using the number buttons.

Action	Result
1 Press ⊕ to enter the preset mode.	 The programme number will start flashing.
2 Select the programme number that you want to skip by pressing PROGR +/– or the number buttons.	 The programme number changes.
3 Press Coo.	 The lowest channel number appears under the programme number.
4 Press ◇.	 The channel is now stored and you have returned to TV mode.
Repeat steps 1 to 4 to skip other programme numbers.	

How to Fine Tune Manually

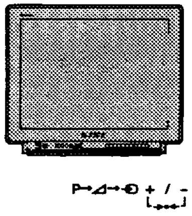
If the picture is distorted, you can fine tune the channel manually.

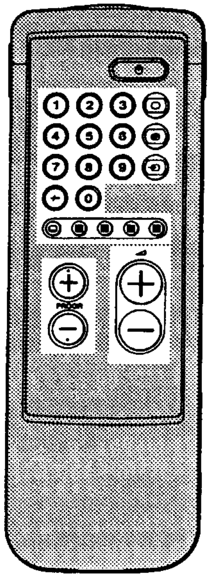
Action	Result
Press ⊞ + or – repeatedly until the picture looks normal.	The indication ← F → appears on the screen.
Press ⊕ to enter the preset mode.	The programme number starts flashing.
Press ◇.	The fine tuning is stored.

Note: The automatic fine tuning will function again when you preset the channel once more.

1-3. Basic TV operation

Note: Press ⊥ on door to open.

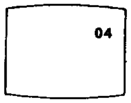




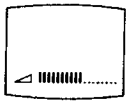
This section introduces you to the basic control functions which are available on the simple side of the remote commander.

How to Select Programmes

Before you can select programmes make sure that you have preset channels, refer to page 29.

Action	Result
Press PROGR +/– or the number buttons. To select a double-digit number, use the -/-- button. For example, if you want to choose 23, press -/--, 2, and then 3.	 The selected programme is displayed.

How to Adjust the Volume

Action	Result
Press ⊿ + or –.	 The volume markers will appear.

How to Use Additional Functions

How to operate with the buttons on the TV

You can also select programmes and adjust the volume using the P→⊿→⊕ and →•← +/– buttons on the front of the TV.
For operation, first press the P→⊿→⊕ button repeatedly so that the P (for programme) or ⊿ (for volume) indication appears on the screen, and then adjust with the →•← +/– buttons.

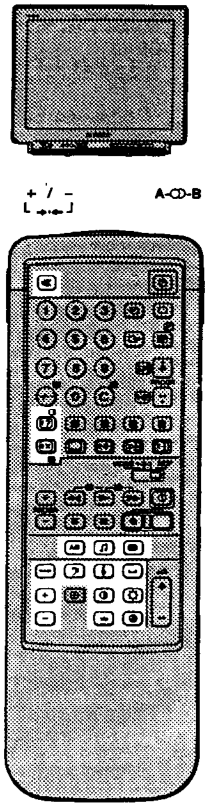
How to view the teletext

Press ⊜. To return to the TV mode, press ▢.
For details about the teletext operation, refer to page 33.

How to view the video input picture

Press ⊕ To return to the TV mode, press ▢. For further details, refer to page 36.

1-4. Advanced TV operation



This section shows you how to use convenient features and how to adjust the picture and sound to your taste.
Use the full-function side of the Remote Commander.

How to use on-screen display and special sound features

You can enjoy the following convenient features.

How to	Action	To resume normal picture/sound
Display on-screen indications	Press ⊕.	Indications disappear after some seconds
Display programme numbers	Press ⊕ twice	Press ⊕ twice again.
Mute the sound	Press 🔇.	Press 🔇 again.
Select a language in bilingual programmes.	Press A/B. The selected mode of the A-CD-B indicator on the TV lights up.	Press A/B.
Set the sound to music listening position	Press ♫.	Press ♫ again.
Use the space sound (special acoustic effect)	Press ⊖⊕	Press ⊖⊕ again.
Request the time	Press Ⓟ.	Press Ⓟ again.

How to adjust the picture and sound

Although the picture and sound have been adjusted at the factory, you might want to adjust them to your own taste. To do this, please follow the steps.

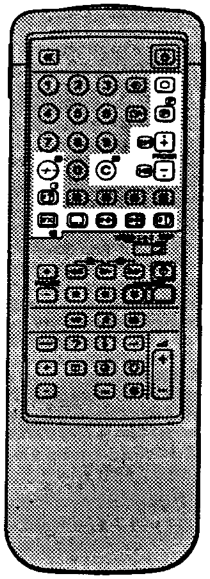
For picture adjustment

To Adjust:	Press:	Then:	Result: (– ⟷ +)
Picture:			
Colour Intensity	●	⊞ ⊟	Less ⟷ More
Picture Contrast	◑		Less ⟷ More
Brightness	☼		Dark ⟷ Light
Hue (for NTSC only)	♔		Greenish ⟷ Redish
Sound:			
Bass	𝄢	⊞ ⊟	Less ⟷ More
Treble	𝄞		Less ⟷ More
Balance	⋈		More Left/More Right

To reset the picture and sound to factory set levels press →•←.

On the set:
Press →•← +/– buttons simultaneously.

1-5. Teletext operation



TV stations broadcast teletext programmes via the TV channels. To receive teletext programmes, use the buttons indicated in green on the full side of the Remote Commander.
With the simple side of the Remote Commander, only the basic operation is possible.

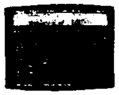
How to View the Teletext

Action	Result
1 Select the channel which carries the teletext service you wish to see.	The channel changes on the screen.
2 Press ⊜. **Note on the Toptext** Top-text programme is available only from some German stations. For information about the Toptext, please refer to the German language of this manual.	 INDEX Teletext will appear. If the teletext signal is not broadcast, then p100 is displayed.
3 Input three digits for the page number using the number buttons. **Note** If you make a mistake, type in any three digits, then re-enter the correct page number.	The numbers are entered on the screen. The requested page will appear in a few seconds.
To return to the TV mode. Press ▢. **To change the teletext channels** First press ▢ to return to the TV mode, then repeat steps 1 to 3.	

Note
If the signal of the TV channel is weak, teletext errors may often occur.

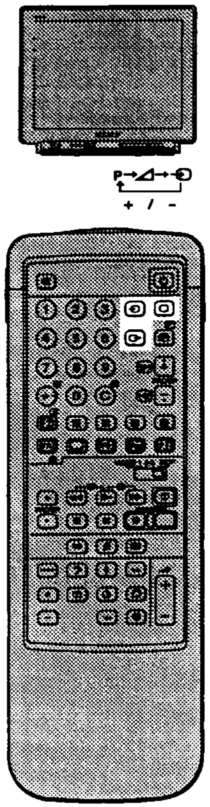
How to Use the Advanced Features of Teletext

How to	Action	Result (On-screen display)
Request the index page.	Press ⓘ (INDEX).	 INDEX The index page appears.
Request the subtitle page (p888).	Press ▢.	The subtitle page is displayed (p888).
Access the next or preceding page.	Press ⊕ (PAGE +) or ⊖ (PAGE –).	 P201 The next or preceding page appears.

How to	Action	Result
Superimpose the teletext display on the TV programme.	Press ■ once if you are in text mode, or press ■ twice if in TV mode. To return to the normal teletext display press ■ again.	The teletext displays are superimposed on the TV programmes.
Prevent a teletext page from being updated or changed.	Press ■ (HOLD). To resume normal teletext reception, press ■ (TEXT/MIX).	The HOLD symbol (■) appears on the screen and the chosen sub-page is held until you cancel.
Enlarge the teletext display.	Press ■ once to enlarge the upper half. Press twice to enlarge the lower half. Press again to restore the normal display.	world weather The upper half is enlarged.
Reveal concealed information (e.g. answers to a quiz).	Press ■ (REVEAL). Press again to conceal the information.	 The information is revealed.
Watch the TV programme while waiting for a requested page to be displayed.	1. Request a new page.	The numbers are entered.
	2. Press ■ (TEXT CL).	The TV program is displayed, and the requested page number and other teletext data appear at the top of the screen.
	3. When the requested page has been captured, the page number remains and the other data disappears.	
	4. Press ■ to view this page.	The requested page is displayed.
Have a requested page displayed at a pre-determined time.	1. Request a desired page.	The requested page is displayed.
	2. Press ■ (TP ON).	"T****" appears at the bottom of the screen or "0001" at the top.
	3. Enter the time you want to have the page displayed with four digits using the number buttons. (For example, enter 0730 for 7:30 AM.)	The time is entered on the screen.
	To watch the TV programme until the requested time Press ■ (TEXT CL). At the requested time, the page number will be displayed at the top of the screen. To view this page, press ■. **To cancel the request** Display the teletext page, then press ■ (TP OFF).	

Some of the features may not be available depending on the Teletext service.

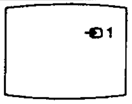
1-6. Optional connections/operations



How to view the video input picture

You can view the picture of video equipment connected to the input terminals by selecting the input mode.

Operation

Action	Result
Press ⇥ repeatedly to select the desired input.	 Symbol for the selected input appears. (See the table below.)
To return to the TV mode, press the ▢ button.	

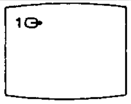
Input modes

Symbol	Result
⇥1	Audio/video input through the ⇥⊞ connector.
⇥̈	RGB input through the ⇥⊞ connector.
⇥2	Audio/video input through the ↦ 2/⇥⊞ connector.
⇥⊞ 2	S video input (from a VTR equipped with an S video output) through the ↦ 2/⇥⊞ connector.
⇥3	Audio/video input through ⇥ and ⇥ jacks on the front.
You can also select the input mode using the P →⊿→ ⇥ button on the TV. In this case, first select ⇥ and then press +/– buttons to select the input.	

How to select the Output

The ↦ 2/⇥⊞ connector outputs four kinds of audio/video signals. You have to select one of them as follows.

Operation

Action	Result
Press ↦ repeatedly to select the desired input.	 Symbol for the selected output appears. (See the table below.)

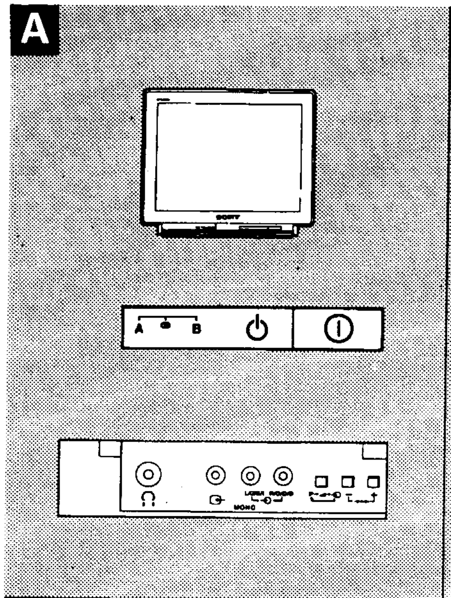
Output modes

Symbol	Output from
1 ↦	The audio/video signal from the ⇥⊞ 1 connector
2 ↦	The audio/video signal from the ↦ 2/⇥⊞ connector
3 ↦	The audio/video signal from the ⇥ ⇥ connectors.
TV ↦	The audio/video signal from the ⫪ aerial terminal.

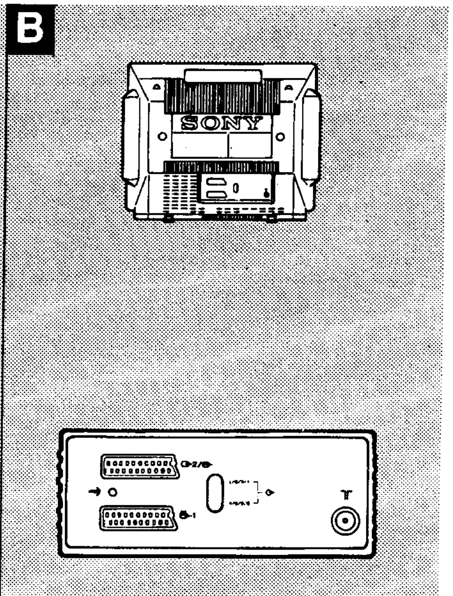
1-7. Additional information

Parts Identification

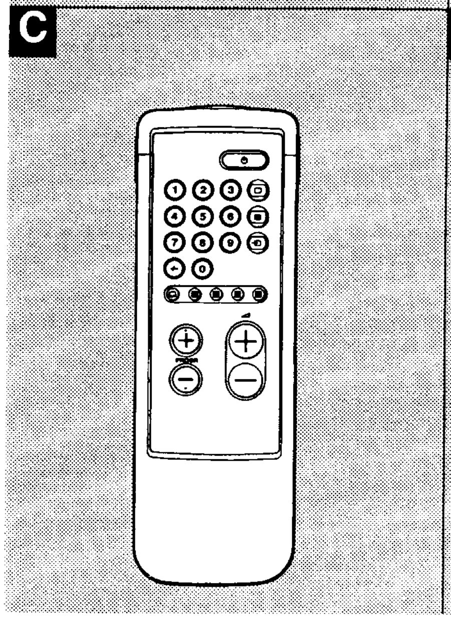
A



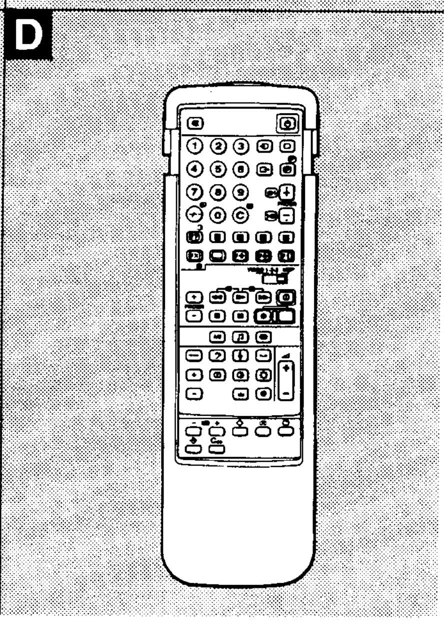
B



C



D



This section briefly describes the buttons and controls on the TV set and on the Remote Commander. For more information, refer to the pages given next to each description.

A TV set – Front

Sign	Name
⏼	Main power switch
⏻	Standby indicator
A-Ꝏ-B	Bilingual A/B indicators
Ω	Headphones jack (stereo minijack)
-⊙-⊙	Input jacks (video /video/audio)
P→◿→-⊙	Function selector (Programme/ volume/input)
- / + →•←	Adjustment buttons for function selector

B TV set – Rear

Sign	Name
⊖•2/-⊖	21-pin Euro-AV connector (S-video/video input, TV/video output)
-⊖	21-pin Euro-AV connector (RGB/ video input, TV output
⊖→	Audio output jacks (phono jacks)
╥	Aerial terminal (IEC type)

C Remote Commander – simple side

Sign	Name
-⊙	Input mode selector
⊜	Teletext button
▢	TV mode selector
⏻	Standby button
1,2,3,4,5, 6,7,8,9, and 0	Number buttons
-/--	Double-digit entering button
◿ +/-	Volume control button
PROG +/-	Programme selector

D Remote Commander – full function side

Sign	Name
🔇	Mute on/off button
⏻	Standby button
1,2,3,4,5, 6,7,8,9, and 0	Number buttons
-⊙	Input mode selector
▢	TV power on/TV mode selector button
⊖→	Output mode selector
⊜	Teletext button
♫	Music button
A/B	Language selector in bilingual programme
-/--	Double-digit entering button
C	Direct channel entering button
⊛	Space sound button
◎	Request time display
⊡ ⊡ ⊡ ⊡ ⊡ ⊡ ⊡ ⊡ ⊡ ⊡	Teletext operation buttons
■ ■ ■ ■	Toptext buttons
⊕	On-screen display button
→•←	Picture and sound adjustment reset button
◿ +/-	Volume control
PROG +/-	Programme selector
◑ ☼ ◕ ♛ ◿ ♪ ♩ +/-	Picture and sound controls
VIDEO 1/2/3, MDP	Video equipment selector
◀◀ ▶ ▶▶ ■ ❚❚ ●	Video equipment operation buttons
Coo	Programme number clear button
⇾	Channel preset button
- ⊞ +	Tuning buttons
◇	Channel store button
▢	Station label button

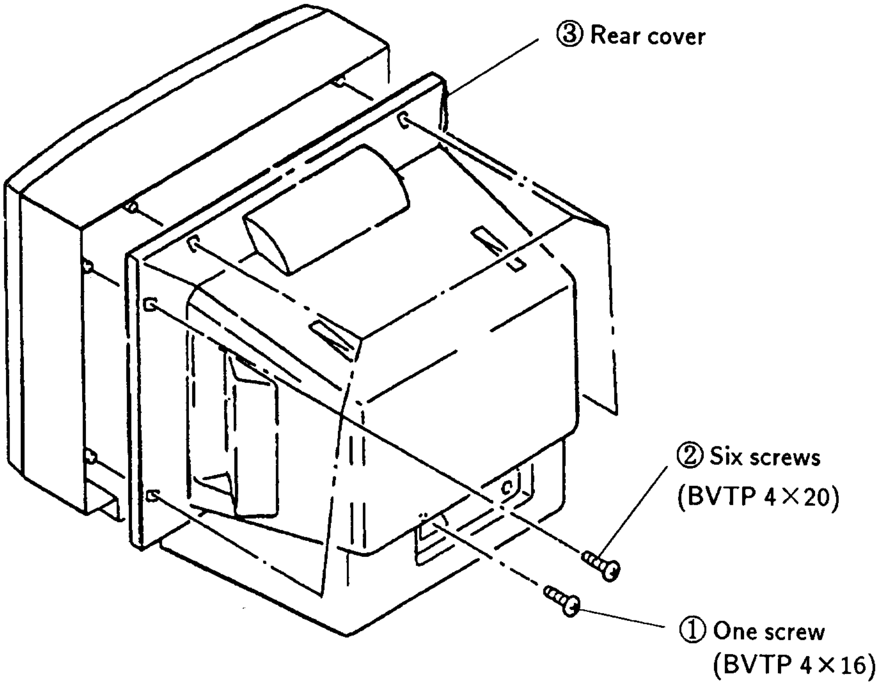
1-8. Troubleshooting

Here are some simple solutions to the problems which affect the picture and sound.

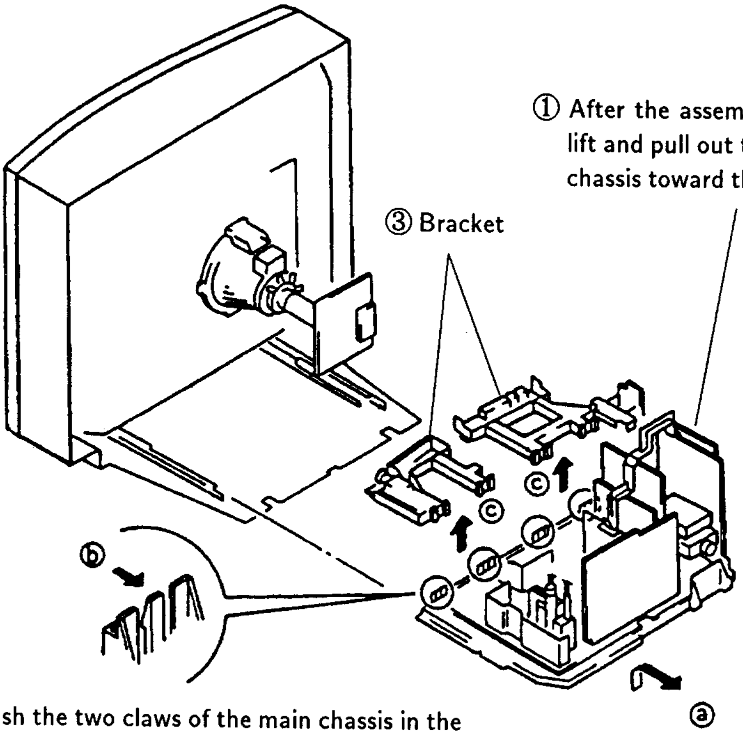
Problem	Solution
No picture (screen is dark), no sound	• Plug the TV in. • Press ⏼ on the TV. (If ⏻ indicator is on, press ▢ or the programme number on the Remote Commander.) • Check the serial connection. • Check if the selected video source is on. • Turn the TV off for 3 or 4 seconds and then turn it on again using ⏼.
Poor or no picture (screen is dark), but sound good	• Adjust the picture with ☼, ◐, ◕, and + buttons.
Good picture but no sound	• Press ◢ +. • Disconnect the headphones. • If 🔇 is displayed on the screen, press 🔇.
No colour for colour programmes	• Press →•← on the Remote Commander.
If you continue to have these problems, have your TV serviced by qualified personnel. Never open the casing yourself.	

SECTION 2
DISASSEMBLY

2-1. REAR COVER REMOVAL


③ Rear cover
② Six screws
(BVTP 4×20)
① One screw
(BVTP 4×16)

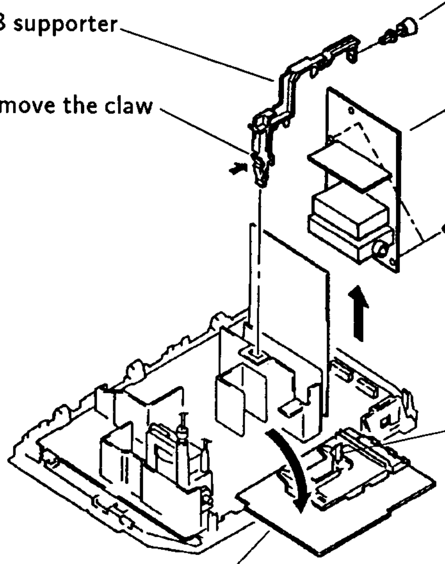
2-2. CHASSIS ASSEMBLY REMOVAL



① After the assembly of the main chassis, lift and pull out the rear part of the main chassis toward the rear.

② Push the two claws of the main chassis in the direction of the arrow and remove the bracket upward.

2-3. A AND J 1 BOARDS REMOVAL



③ Remove the T type rivet

⑤ PCB supporter

⑦ A board

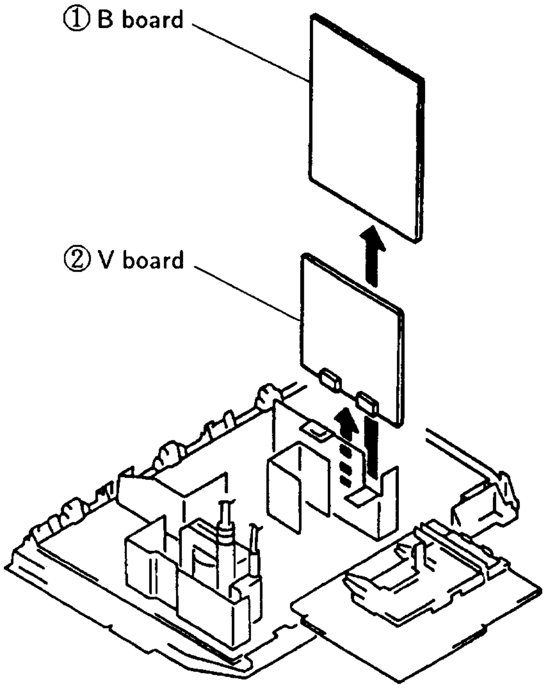
④ Remove the claw

⑥ Remove the two T type rivets

① Remove the claw

② Open the J1 board in the direction the arrow

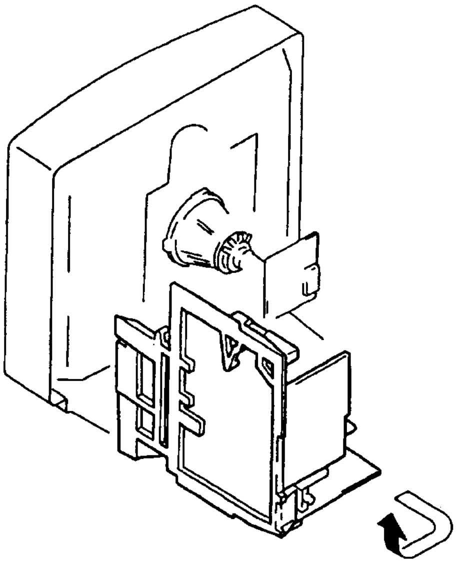
2-4. B AND V BOARDS REMOVAL



① B board

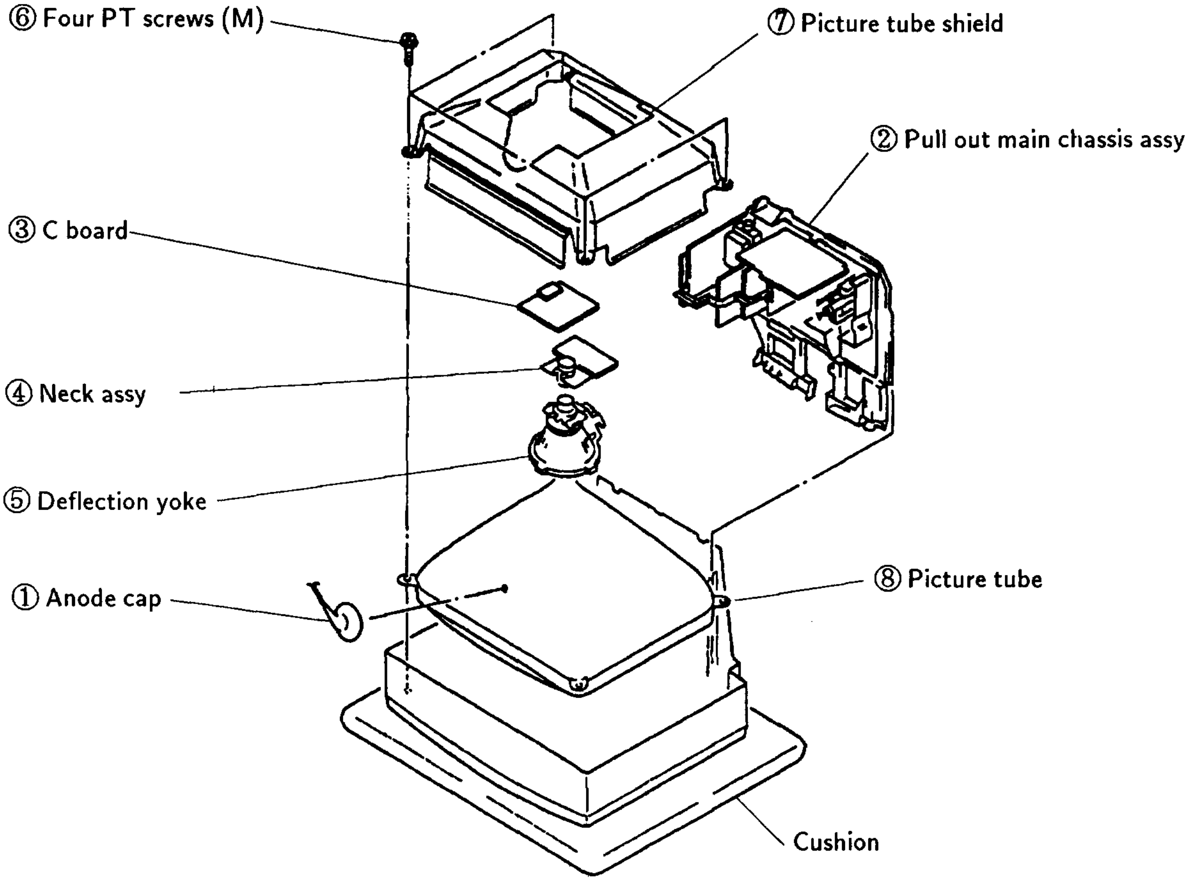
② V board

2-5. SERVICE POSITION



① Remove main chassis assembly in the direction of the arrow.

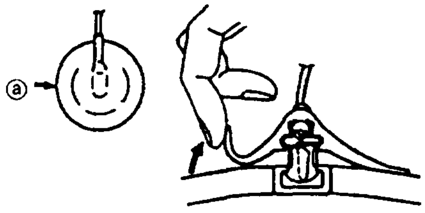
2-6. PICTURE TUBE REMOVAL


⑥ Four PT screws (M)
⑦ Picture tube shield
② Pull out main chassis assy
③ C board
④ Neck assy
⑤ Deflection yoke
① Anode cap
⑧ Picture tube
Cushion

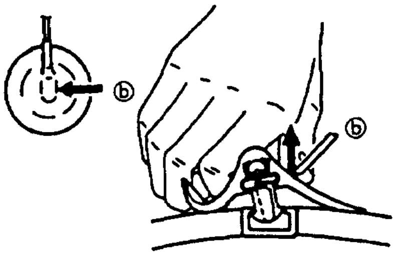
• REMOVAL OF ANODE-CAP

Note : Short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT chield or carbon painted on the CRT, after removing the anode.

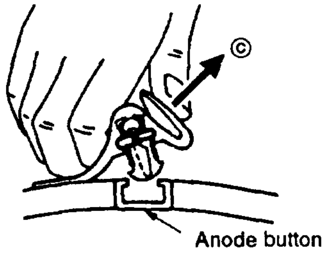
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.


ⓒ
Anode button

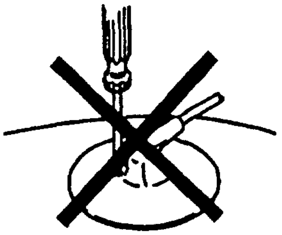
③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling up it in the direction of the arrow ⓒ.

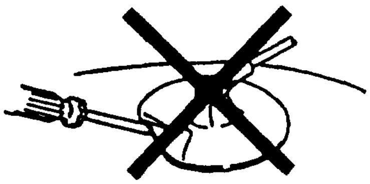
• HOW TO HANDLE AN ANODE-CAP

① Don't hurt the surface of anode-caps with sharp shaped material!

② Don't press the rubber hardly not to hurt inside of anode-caps!
A material fitting called as shatter-hook terminal is built in the rubber.

③ Don't turn the foot of rubber over hardly!
The shatter-hook terminal will stick out or hurt the rubber.





SECITON 3
SET-UP ADJUSTMENTS

- When complete readjustment is necessary or a new picture tube is installed, carry out the following adjustments.
- Unless there is specific instruction to the contrary, carry out these adjustments with the rated power supply.
- Unless there is specific instruction to the contrary, set the controls and switches this way:
  ◑ Contrast ·········80%
  (or remote control normal)
  ☼ Brightness ·········50%

- Carry out the following adjustments in this order:
  1. Beam landing
  2. Convergence
  3. Focus
  4. White balance

Note : Testing equipment required
1. Color bar/pattern generator
2. Degausser
3. DC power supply
4. Digital multimeter
5. Oscilloscope

Preparations :
- In order to reduce the influence of geomagnetism on the set's picture tube face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input the white signal with the pattern generator.
   Contrast }
   Bightness } normal
2. Position neck ass'y as shown in Fig 3-2.
   (29 inch only)
3. Set the pattern generator raster signal to red.
4. Move the deflection yoke to the rear and adjust with the purity control so that the red is at the center and the blue and the green take up equally sized areas on each side.
   (See Figures 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that entire screen is red. (See Figure 3-1.)
6. Switch the raster signal to blue, then to green and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 3-4.)

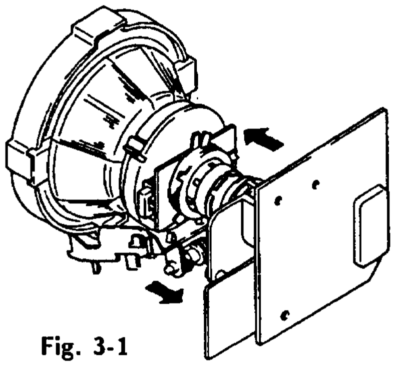
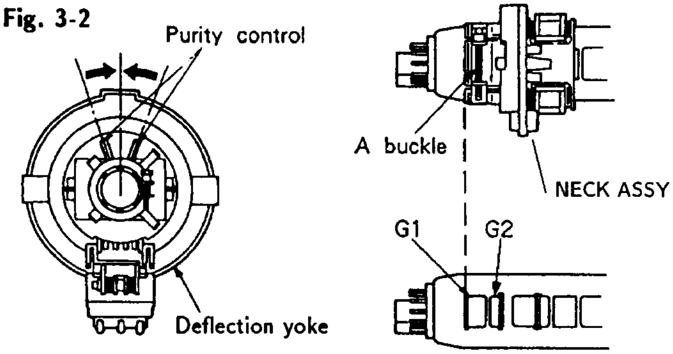


Fig. 3-1

Fig. 3-2


Purity control
A buckle
NECK ASSY
G1
G2
Deflection yoke

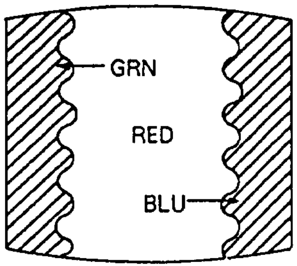


Fig. 3-3

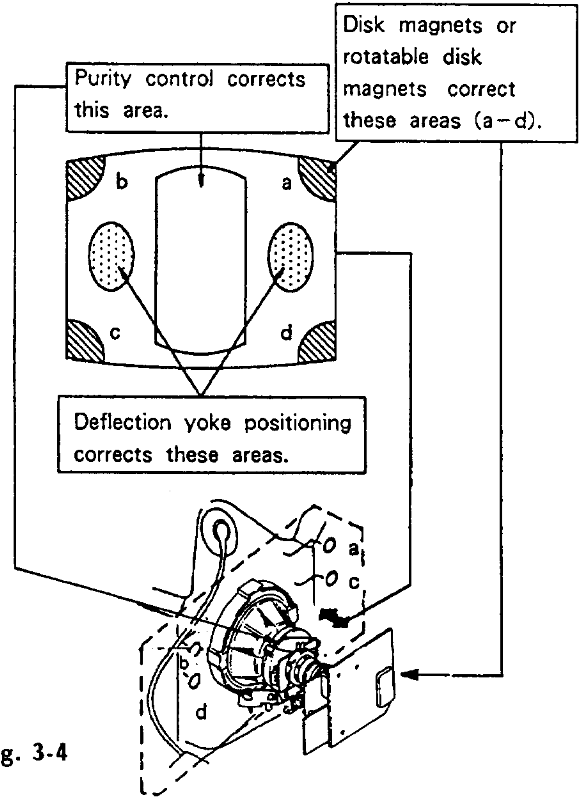

Disk magnets or rotatable disk magnets correct these areas (a–d).
Purity control corrects this area.
b
a
c
d
Deflection yoke positioning corrects these areas.
a
c
b
d

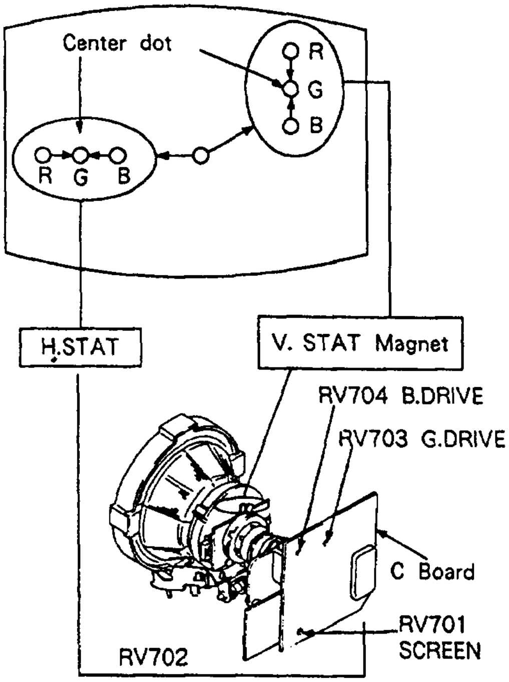
Fig. 3-4

3-2. CONVERGENCE

Preparations :

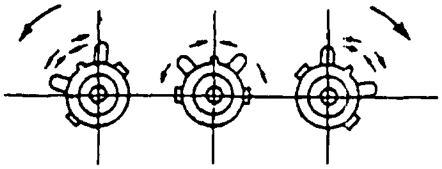
- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

(1) Horizontal and vertical static convergence

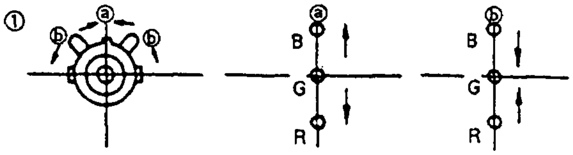

Center dot
R
G
B
R G B
H.STAT
V. STAT Magnet
RV704 B.DRIVE
RV703 G.DRIVE
C Board
RV701
SCREEN
RV702

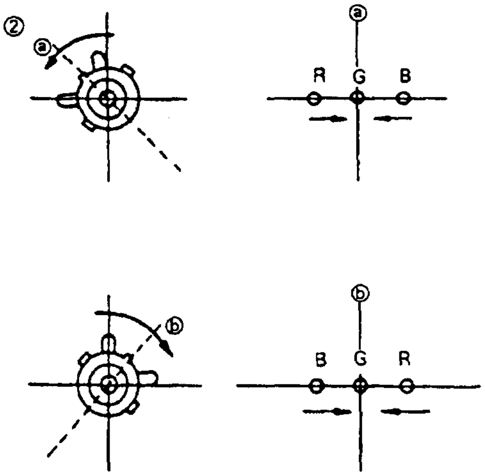
1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

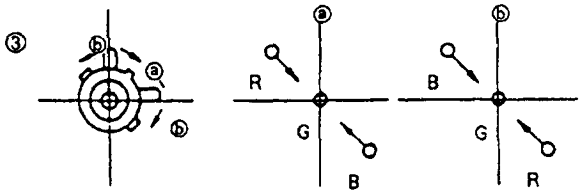
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



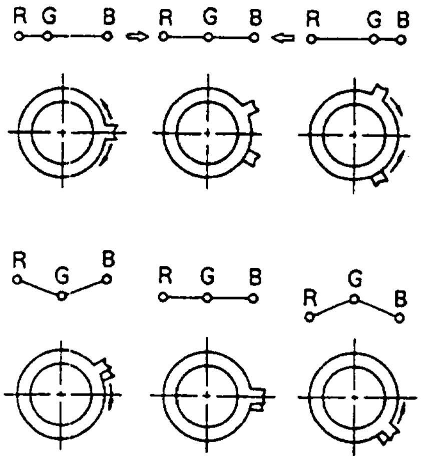
4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue points move as shown below.

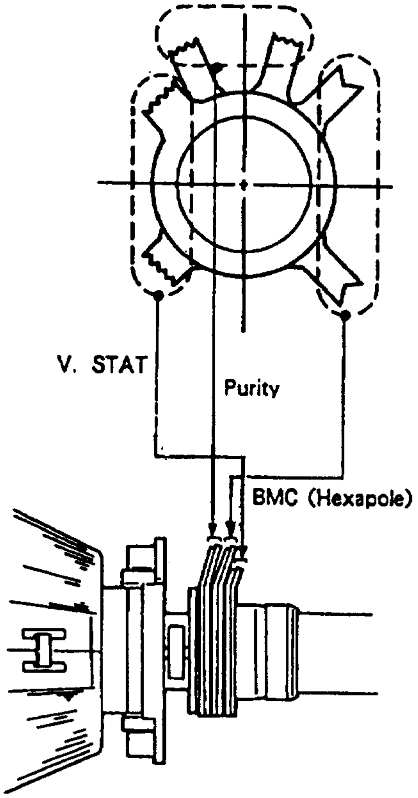






- Operation of BMC (Hexapole) Magnet


R G B
R G B
R G B
R G B
R G B
R G B


V. STAT
Purity
BMC (Hexapole)

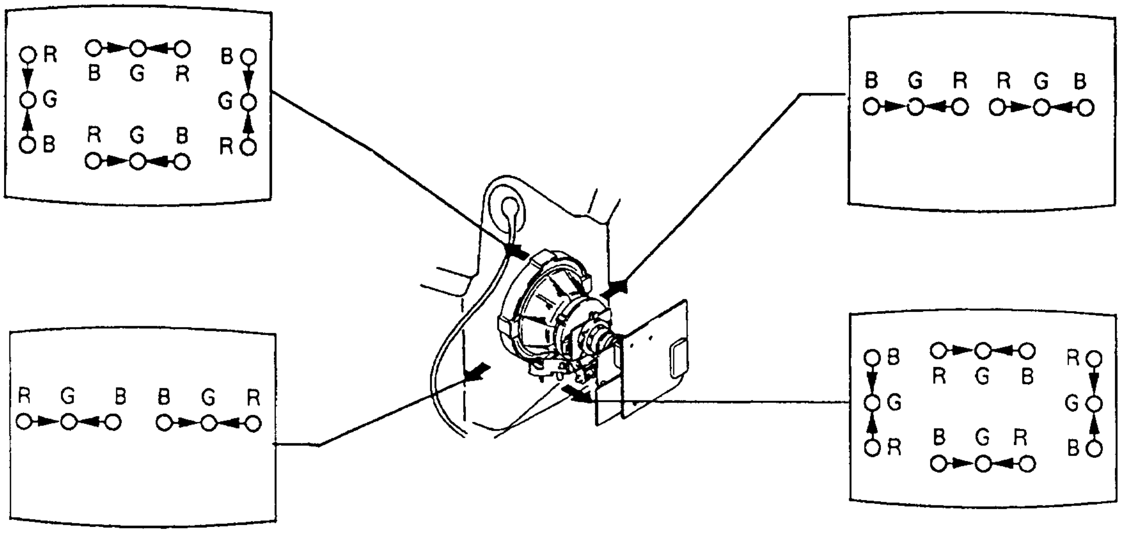
- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking.
  Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

(2) Dynamic convergence adjustment

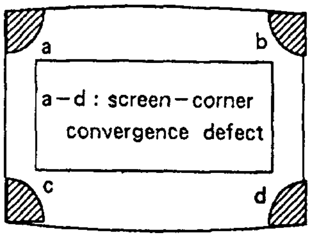
Preparations :

Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

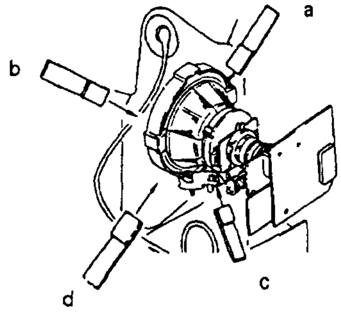
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.


R G B
B G R
R G B
B G R
B G R R G B
R G B B G R
B G R
R G B
R G B
B G R

(3) Screen corner convergence



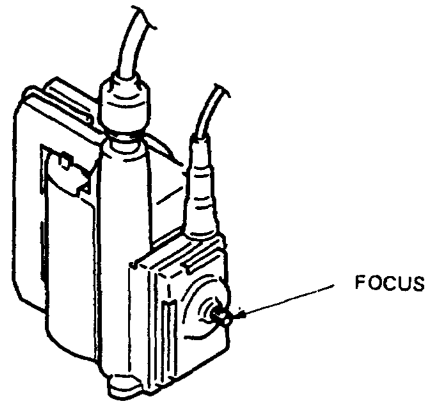
Install the permalloy assembly for the section with faulty.



Permalloy

3-3. FOCUS

Adjust the focus to optimize the screen.



3-4. WHITE BALANCE

[Screen G2 setting]

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170V DC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

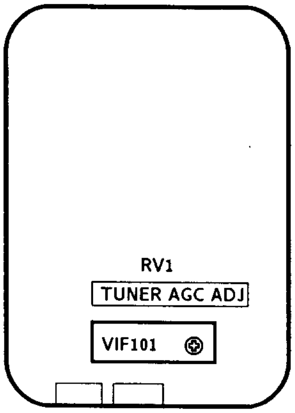
[White balance adjustment]

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use the RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS

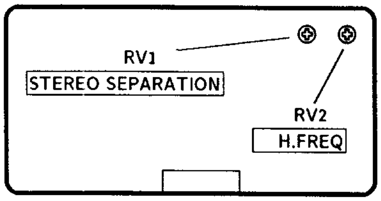


A BOARD (COMPONENT SIDE)

TUNER AGC ADJUSTMENT (VIF101, RV1)

1. Align with an appropriate signal between stations.
2. Adjust RV1 so that snow noise and cross modulation just disappear from the picture.

IFG5.5S SIF



IFG5.5S SIF -component side-

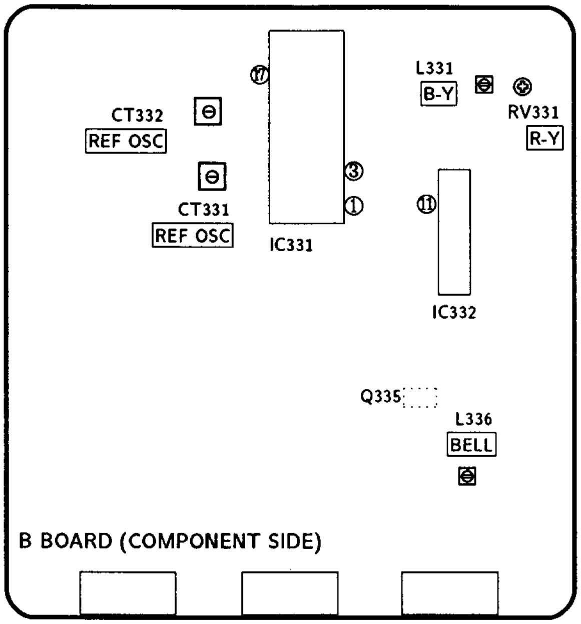
STEREO SEPALATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minmum.

H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin⑫ IC4 and GND.
2. Connect a frequency counter to pin④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ) 15.625±50Hz.
4. After adjustment, remove the jamper.

4-2. B BOARD ADJUSTMENTS



B BOARD (COMPONENT SIDE)

REFERENCE OSCILLATOR ADJUSTMENT (CT332 8.8MHz)

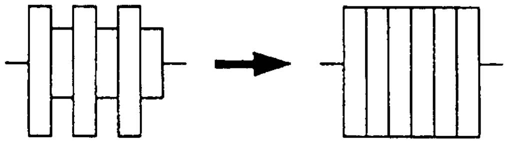
1. Input a PAL color bar signal.
2. Ground pin ⑰ of the IC331.
3. Adjust CT332 to obtain synchronization.

REFERENCE OSCILLATOR ADJUSTMENT (CT331 7.16MHz)

1. Input an NTSC color bar signal.
2. Ground pin ⑰ of IC331.
3. Adjust the CT331 to obtain synchronization.
4. Remove the jumper grounding pin ⑰ of IC331.

BELL FILTER ADJUSTMENT (L336)

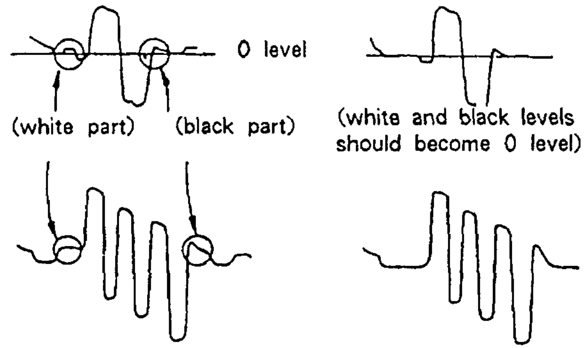
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q335.
3. Adjust L336 so that the waveform is flat.



<Before Adjustment> <After Adjustment>

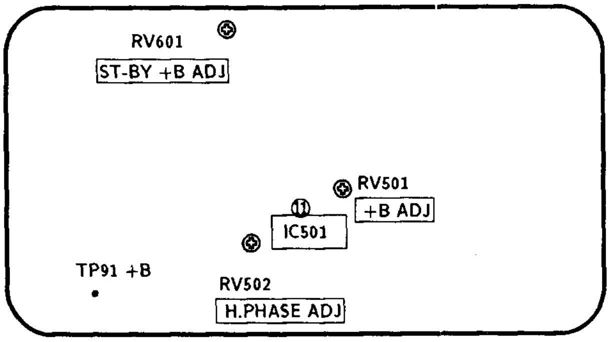
DISCRIMINATION ADJUSTMENTS (RV331 and L331)

1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC331.
3. Adjust RV331 until the white and black sections of the waveform at pin ① are at the 0 level.
   Connect the oscilloscope to pin ③ of IC331.
4. Adjust L331 until the white and black sections of
5. the waveform at pin ③ are at the 0 level.


0 level
(white part)
(black part)
(white and black levels should become 0 level)

(Before Adjustment) (After adjustment)

4-3. D BOARD ADJUSTMENTS


RV601
ST-BY +B ADJ
RV501
⑪
+B ADJ
IC501
TP91 +B
RV502
H.PHASE ADJ

D BOARD (COMPONENT SIDE)

+B ADJUSTMENT (RV501)

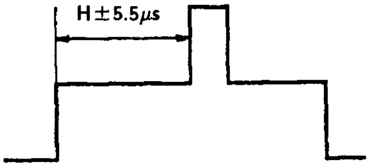
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain 135±0.2V.

ST-BY +B ADJUSTMENT (RV601)

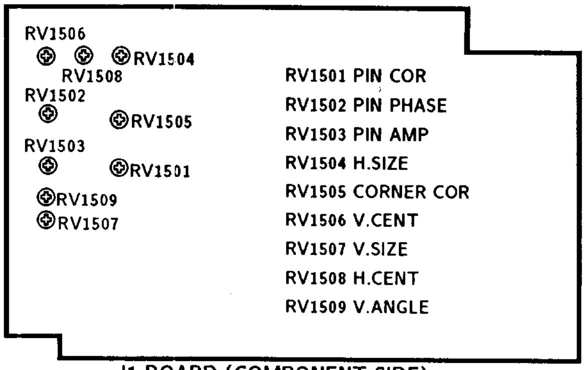
1. Put the system into ⏻ standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain 135±3V.
4. Take the system out of ⏻ standby mode (remote commander).

H.PHASE ADJUSTMENT (RV502)

1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to 5.5±0.1μs.

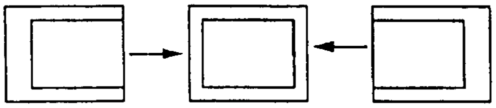


4-4. J1 BOARD ADJUSTMENTS

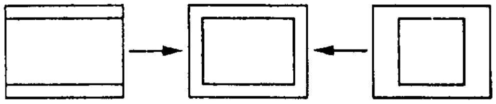

RV1506
RV1508
RV1504
RV1502
RV1505
RV1503
RV1501
RV1509
RV1507
RV1501 PIN COR
RV1502 PIN PHASE
RV1503 PIN AMP
RV1504 H.SIZE
RV1505 CORNER COR
RV1506 V.CENT
RV1507 V.SIZE
RV1508 H.CENT
RV1509 V.ANGLE

J1 BOARD (COMPONENT SIDE)

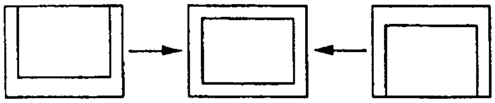
RV1508
H. CENT (HORIZONTAL CENTER)



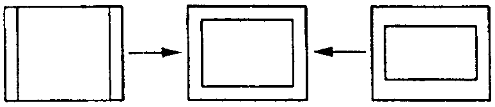
RV1504
H. SIZE (HORIZONTAL SIZE)



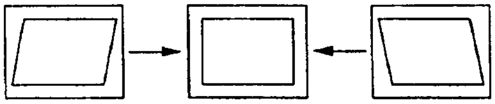
RV1506
V. CENT (VERTICAL CENTER)



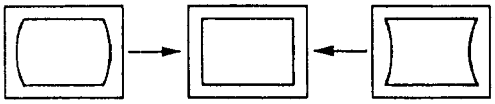
RV1507
V. SIZE (VERTICAL SIZE)



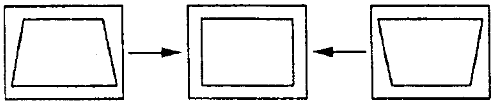
RV1509
V. ANGLE (VERTICAL ANGLE)



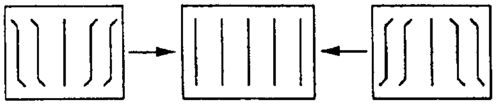
RV1503
PIN AMP (PINCUSHION AMPLIFIER)



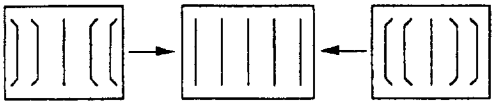
RV1502
PIN PHASE (PINCUSHION PHASE)



RV1501
PIN. COR (PINCUSHION CORRECT)



RV1505
CORNER. COR (CORNER CORRECT)



4-5. SECONDARY ADJUSTMENTS

SUB BRIGHTNESS ADJUSTMENT

1. Set the system to receive a test pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and − simultaneusly, turn on the power. (SUB mode is obtained)
5. Minimize the ◐ contrast setting.
6. Adjust the ☼ brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the ◇ (store) button of the remote commander.
   (SUB mode is released)

   If there is no test color pattern

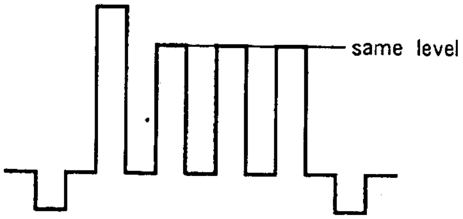
1. Set the system to receive a color pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
   Set the ◉ color to its normal state.

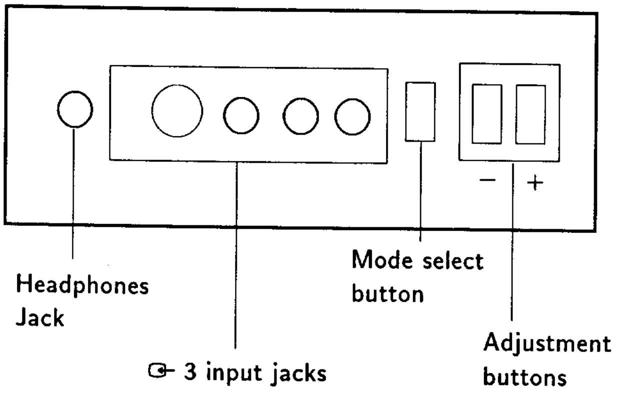
3-5. Steps are the same as above.

6. Since 20 IRE is nearly blue, adjust the ☼ brightness control so that the blue barely glows.
7. Same as step 7 above.
8. Press → • ← on the remote commander to put the system into normal mode.

SUB COLOR ADJUSTMENT

1. Set the system to receive color bars.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and − simultaneusly, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the ◇ (store) button of the remote commander. (SUB mode is released)



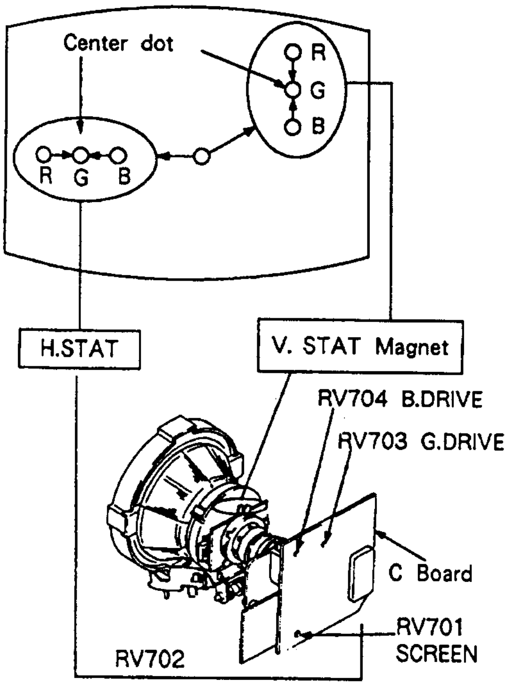


3-2. CONVERGENCE

Preparations :

- Before starting this adjustment, adjust the focus, horizontal size, and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

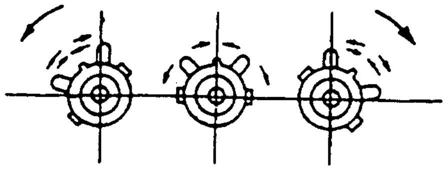
(1) Horizontal and vertical static convergence



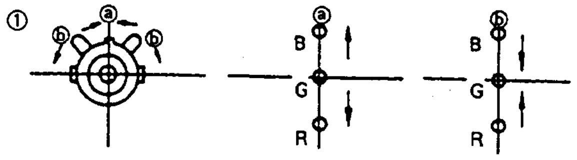
Center dot
R
G
B
R G B
H.STAT
V. STAT Magnet
RV704 B.DRIVE
RV703 G.DRIVE
C Board
RV701
SCREEN
RV702

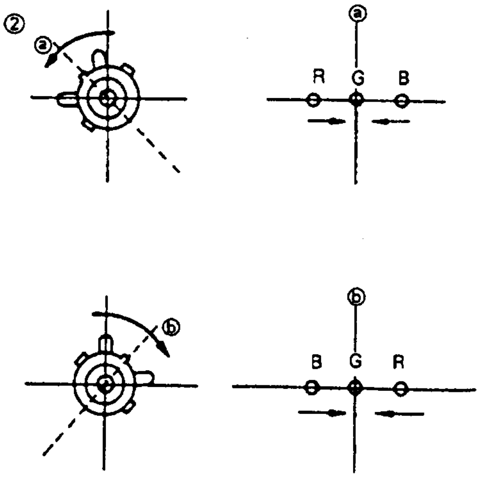
1. (Moving horizontally), adjust the H.STAT control so that the red, green, and blue points are on top of each other at the center of the screen.
2. (Moving vertically), adjust the V.STAT magnet so that the red, green, and blue points are on top of each other at the center of the screen.
3. If the H.STAT variable resistor cannot bring the red, green, and blue points together at the center of the screen, adjust the horizontal convergence with the H.STAT variable resistor and the V. STAT magnet in the manner given below.
   (In this case, the H.STAT variable resistor and the V.STAT magnet influence each other)

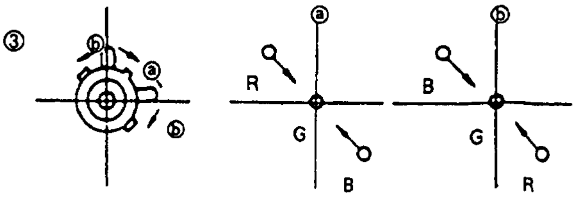
- Tilt the V.STAT magnet and adjust the static convergence by opening or closing the V.STAT magnet.



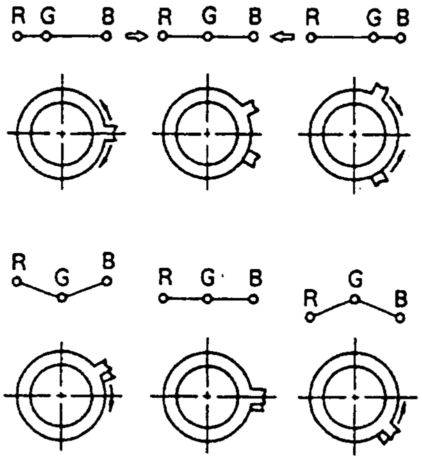
4. If the V.STAT magnet is moved in the direction of the ⓐ and ⓑ arrows, the red, green, and blue points move as shown below.

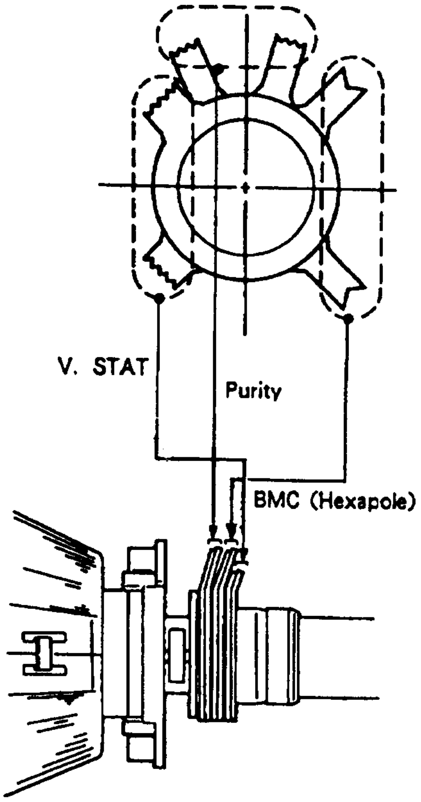






- Operation of BMC (Hexapole) Magnet


R G B
R G B
R G B
R G B
R G B
R G B


V. STAT
Purity
BMC (Hexapole)

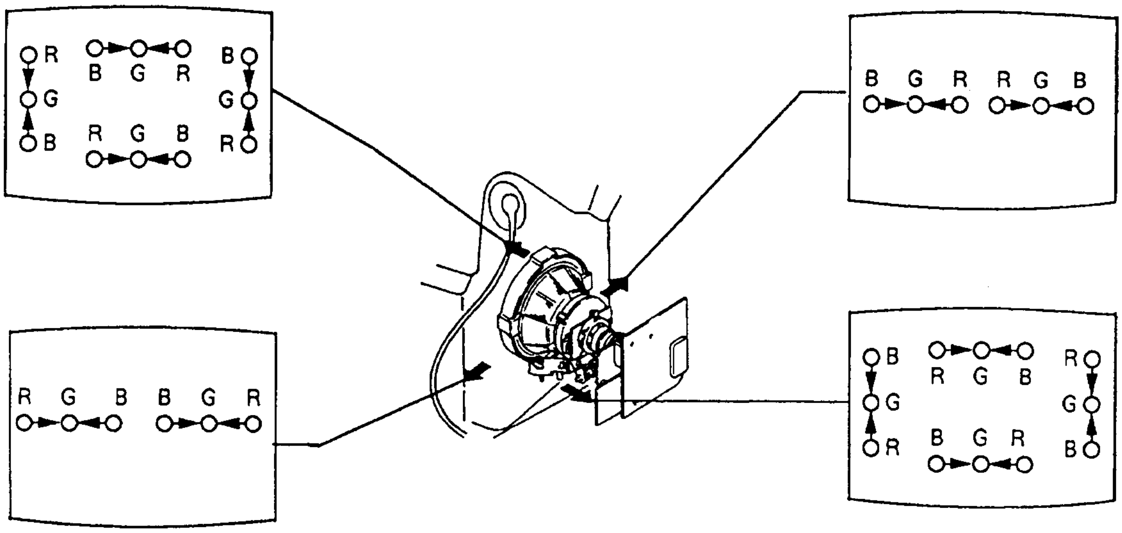
- The respective dot positions resulting from moving each magnet interact, so be sure to perform adjustment while tracking. Use the H.STAT VR to adjust the red, green, and blue dots so they coincide at the center of screen (by moving the dots in the horizontal direction).

(2) Dynamic convergence adjustment

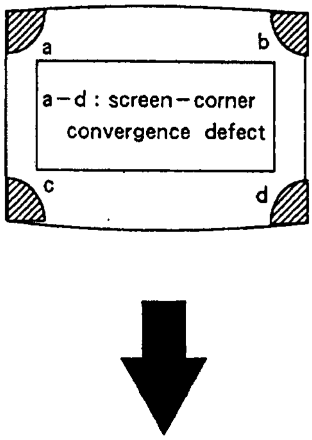
Preparations :

Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence.

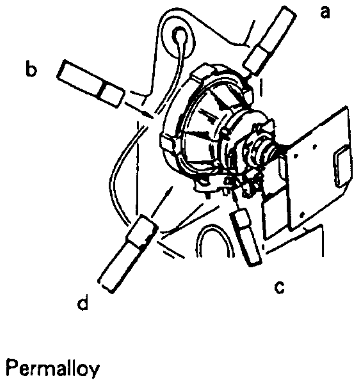
1. Slightly loosen the deflection yoke screws.
2. Remove the deflection yoke spacer.
3. Move the deflection yoke as shown in the figure below and optimize the convergence.
4. Tighten the deflection yoke screws.
5. Install the defelection yoke spacer.


R G B
B G R
R G B
B G R
R G B
R G B
B G R B G R
B G R R G B
R G B B G R
B R G B
R G R G
R G B B G R

(3) Screen corner convergence

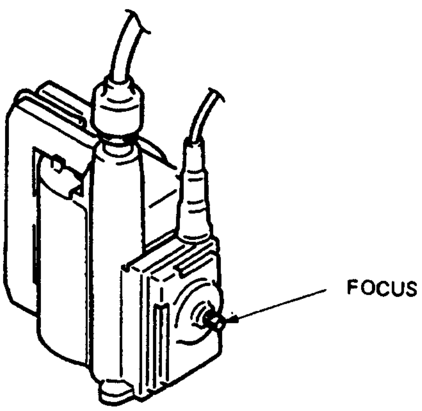


Install the permalloy assembly for the section with faulty.



3-3. FOCUS

Adjust the focus to optimize the screen.



3-4. WHITE BALANCE

[Screen G2 setting]

1. Input the dot signal from the pattern generator.
2. Set the picture brightness control to its lowest level.
3. Apply 170V DC to the R, G, and B cathodes with an external power supply.
4. While watching the picture, adjust G2 control RV701 (Screen) to the point just before the return lines disappear.

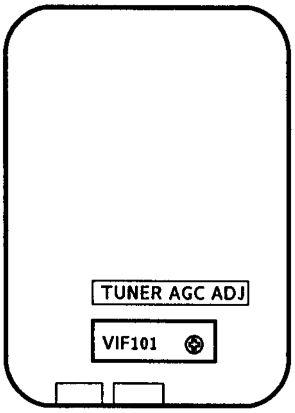
[White balance adjustment]

1. Input an all-white signal from the pattern generator.
2. Set the picture brightness and color controls to their normal levels.
3. Use the RV704 (B Drive) and RV703 (G Drive) to adjust white balance.

In the adjustments below, have the picture color and brightness settings at their normal levels unless there is a specific instruction to the contrary.

SECTION 4
CIRCUIT ADJUSTMENTS

4-1. A BOARD ADJUSTMENTS

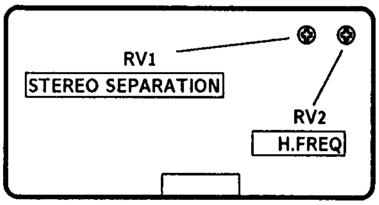

TUNER AGC ADJ
VIF101

A BOARD (COMPONENT SIDE)

TUNER AGC ADJUSTMENT (AGC VR)

1. Align with an appropriate signal between stations.
2. Adjust AGC VR so that snow noise and cross modulation just disappear from the picture.

IFG5.5S SIF


RV1
STEREO SEPARATION
RV2
H.FREQ

IFG5.5S SIF -component side-

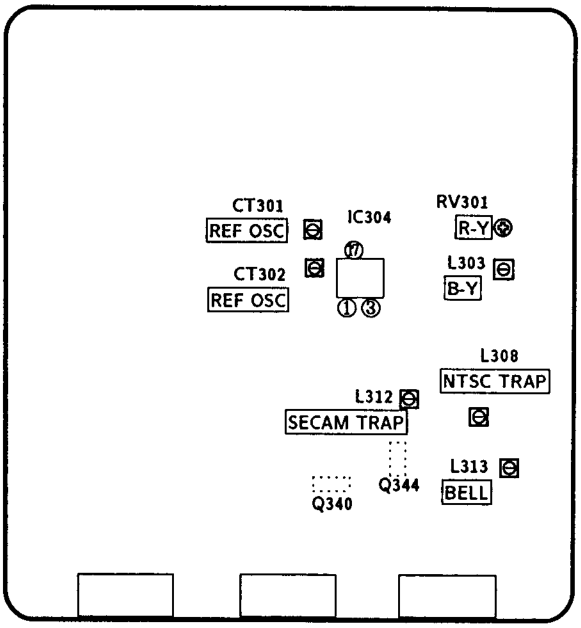
STEREO SEPALATION ADJUSTMENT (RV1)

1. Input stereo signals. (L-CH 400Hz, R-CH 1KHz)
2. Check the stereo indicator.
3. Connect on oscilloscope to pin⑧ (CH1) of CN1 through band pass filter of 1KHz
4. Adjust RV1 so that 1KHz voltage goes down to the minmum.

H FREQ (RV2)

1. Input a PAL COLOR BAR signal, then connect a jumper between pin⑫ IC4 and GND.
2. Connect a frequency counter to pin④ IFG5.5S (HP) of CN1 through a probe of 10 : 1.
3. Adjust RV2 (H.FREQ) 15.625±50Hz.
4. After adjustment, remove the jamper.

4-2. B1 BOARD ADJUSTMENTS


CT301
REF OSC
CT302
REF OSC
IC304
⑰
①③
RV301
R-Y
L303
B-Y
L308
NTSC TRAP
L312
SECAM TRAP
Q344
Q340
L313
BELL

B1 BOARD (COMPONENT SIDE)

REFERENCE OSCILLATOR ADJUSTMENT (CT302 8.8MHz)

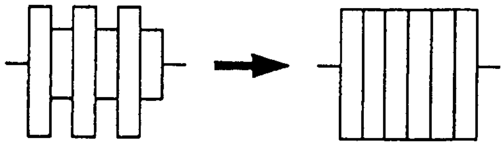
1. Input a PAL color bar signal.
2. Ground pin ⑰ of the IC304.
3. Adjust CT302 to obtain synchronization.

REFERENCE OSCILLATOR ADJUSTMENT (CT301 7.16MHz)

1. Input an NTSC color bar signal.
2. Ground pin ⑰ of IC304.
3. Adjust the CT301 to obtain synchronization.
4. Remove the jumper grounding pin ⑰ of IC304.

BELL FILTER ADJUSTMENT (L313)

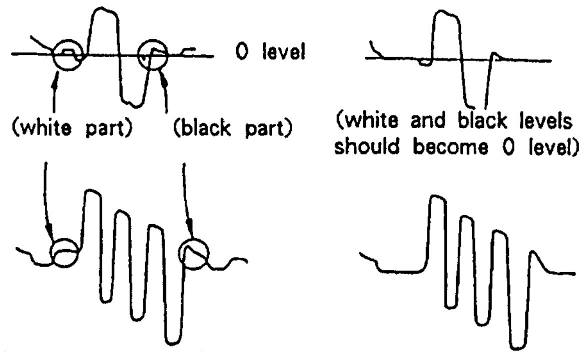
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to the emitter of Q344.
3. Adjust L313 so that the waveform is flat.



<Before Adjustment> <After Adjustment>

DISCRIMINATION ADJUSTMENTS (RV301 and L303)

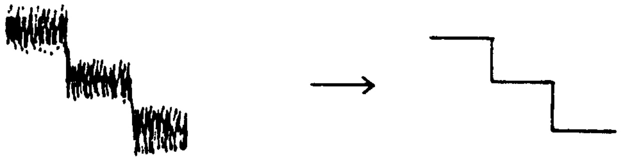
1. Input a SECAM color bar signal.
2. Connect the oscilloscope to pin ① of IC304.
3. Adjust RV301 until the white and black sections of the waveform at pin ① are at the 0 level.
   Connect the oscilloscope to pin ③ of IC304.
4. Adjust L303 until the white and black sections of the waveform at pin ③ are at the 0 level.



(Before Adjustment) (After adjustment)

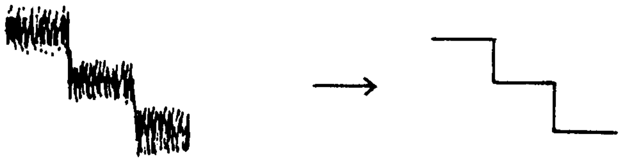
SECAM TRAP (L312)

1. Input a SECAM color bar signal.
2. Connect oscilloscope to Q340 emitter and adjust L312 to minimize color carrier on the Y-signal.

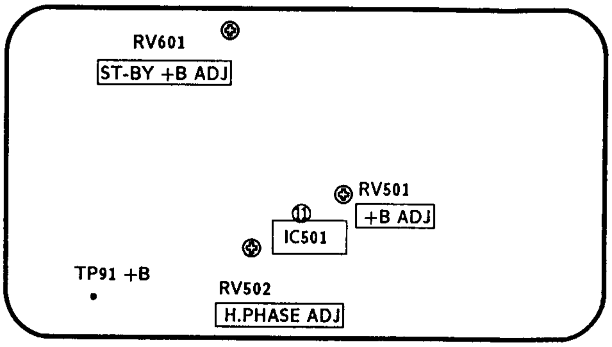


NTSC TRAP (L308)

1. Input a NTSC (3.58) color bar signal.
2. Connect oscilloscope to Q340 emitter and adjust L308 to minimize color carrier on the Y-signal.



4-3. D BOARD ADJUSTMENTS



D BOARD (COMPONENT SIDE)

+B ADJUSTMENT (RV501)

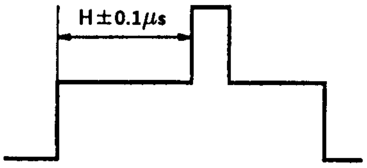
1. Connect the digital multimeter to TP91.
2. Adjust RV501 to obtain 135±0.2V.

ST-BY +B ADJUSTMENT (RV601)

1. Put the system into ⏻ standby mode (remote commander).
2. Connect the digital multimeter to TP91.
3. Adjust RV601 to obtain 135±3V.
4. Take the system out of ⏻ standby mode (remote commander).

H.PHASE ADJUSTMENT (RV502)

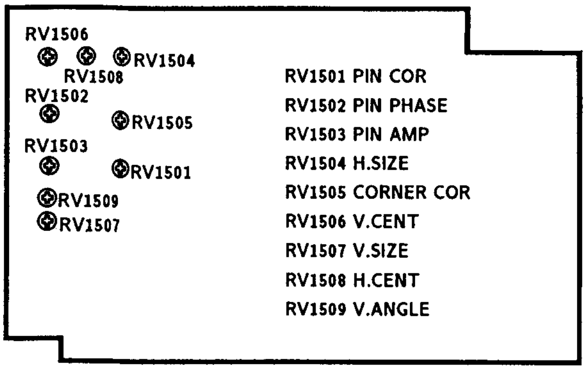
1. Input a PAL color bar signal.
2. Set the picture and brightness controls to their normal levels.
3. Set RV1508 (H.CENT) to its mechanical center.
4. Connect the oscilloscope to pin ⑪ (SCP) of IC 501.
5. Rotate RV502 to adjust to H±0.1μs.



Standard of H. PHASE

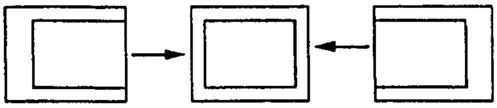
Model Size	H
21″	5.6μs
25″	5.1μs
29″	5.5μs

4-4. J1 BOARD ADJUSTMENTS

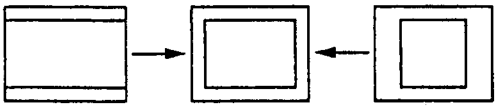

RV1506
RV1504
RV1508
RV1502
RV1505
RV1503
RV1501
RV1509
RV1507
RV1501 PIN COR
RV1502 PIN PHASE
RV1503 PIN AMP
RV1504 H.SIZE
RV1505 CORNER COR
RV1506 V.CENT
RV1507 V.SIZE
RV1508 H.CENT
RV1509 V.ANGLE

J1 BOARD (COMPONENT SIDE)

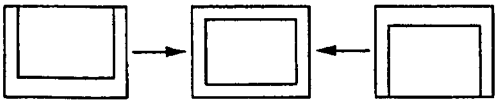
RV1508
H. CENT (HORIZONTAL CENTER)



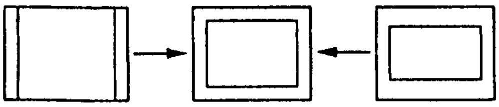
RV1504
H. SIZE (HORIZONTAL SIZE)



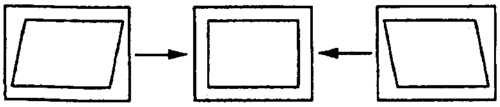
RV1506
V. CENT (VERTICAL CENTER)



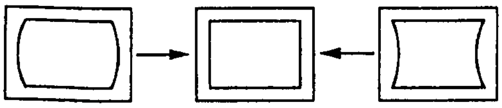
RV1507
V. SIZE (VERTICAL SIZE)



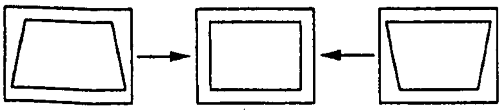
RV1509
V. ANGLE (VERTICAL ANGLE)



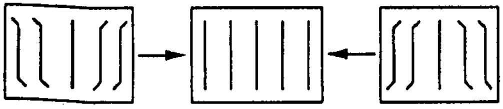
RV1503
PIN AMP (PINCUSHION AMPLIFIER)



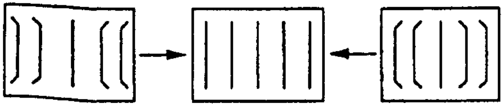
RV1502
PIN PHASE (PINCUSHION PHASE)



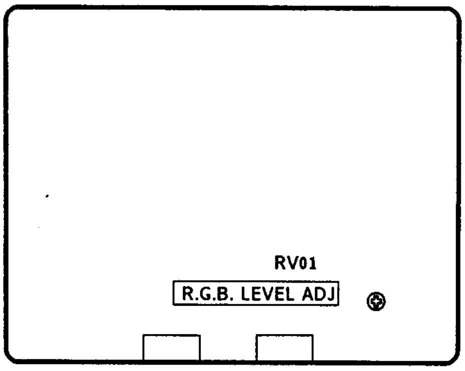
RV1501
PIN. COR (PINCUSHION CORRECT)



RV1505
CORNER. COR (CORNER CORRECT)



4-5. V BOARD ADJUSTMENT


RV01
R.G.B. LEVEL ADJ

V BOARD (COMPONENT SIDE)

RGB LEVEL ADJUSTMENT (RV01)

1. Maximize the picture setting.
2. Adjust RV01 so that the RGB output is 0.75V.

4-6. SECONDARY ADJUSTMENTS

SUB BRIGHTNESS ADJUSTMENT

1. Set the system to receive a test pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Switch off the power.
4. While depressing the adjusting buttons + and − simultaneusly, turn on the power. (SUB mode is obtained)
5. Minimize the ◑ contrast setting.
6. Adjust the ☼ brightness control so that the gray scale 0 IRE section is cut off completely and the 20 IRE section is barely glowing.
7. Depress the ◇ (store) button of the remote commander.
   (SUB mode is released)

If there is no test color pattern

1. Set the system to receive a color pattern.
2. Press → • ← on the remote commander to put the system into normal mode.
   Set the ❂ color to its normal state.

3-5. Steps are the same as above.

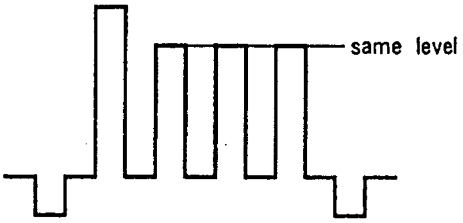
6. Since 20 IRE is nearly blue, adjust the ☼ brightness control so that the blue barely glows.

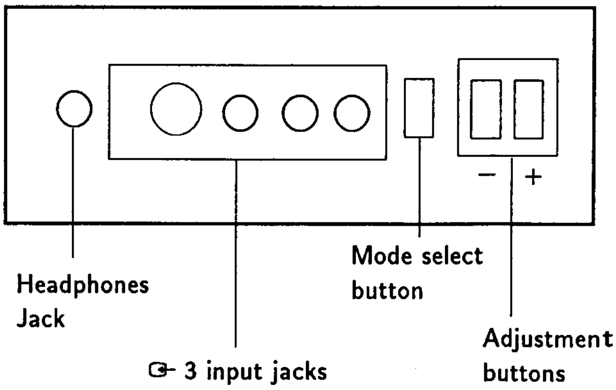
7. Same as step 7 above.

8. Press → • ← on the remote commander to put the system into normal mode.

SUB COLOR ADJUSTMENT

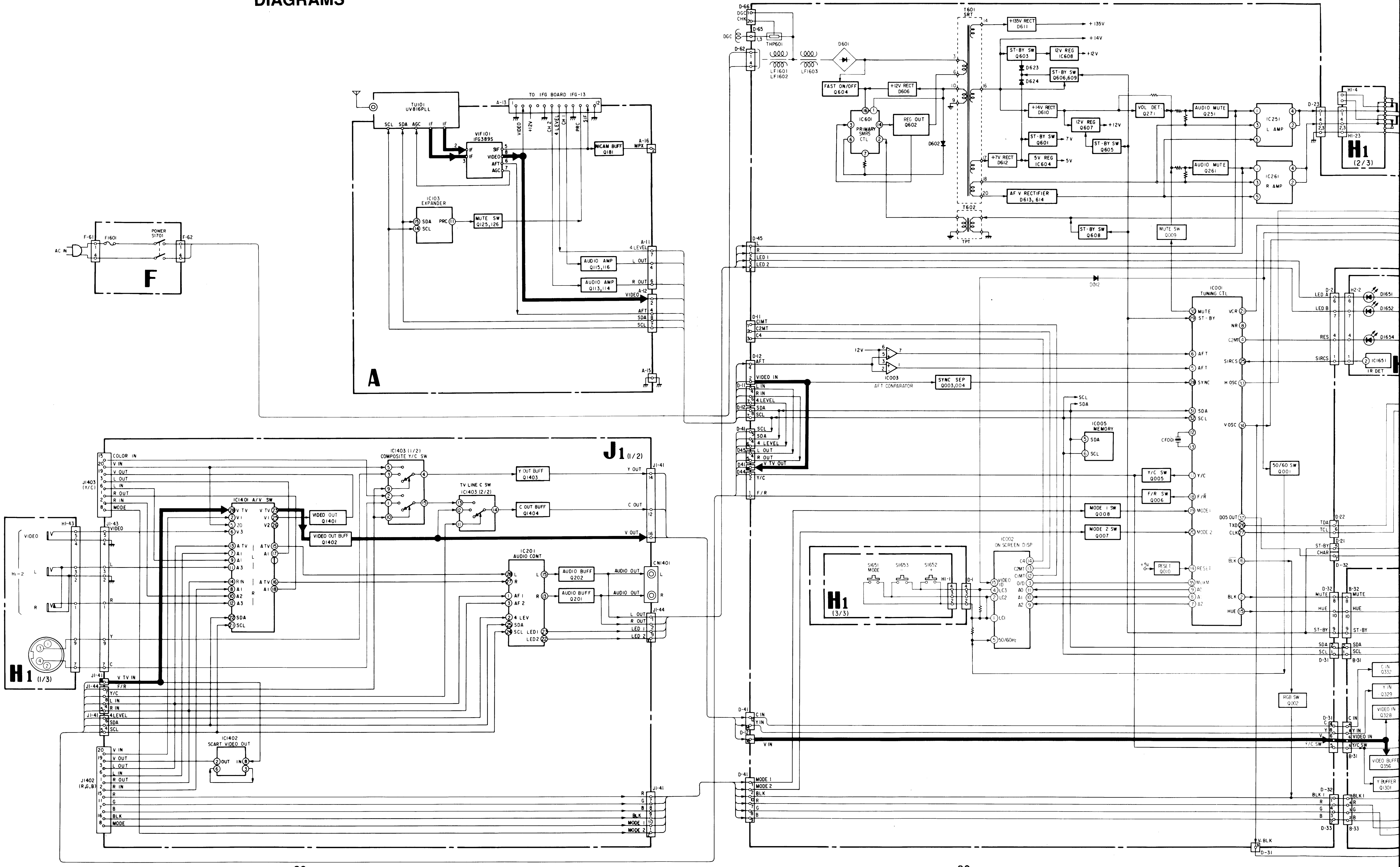
1. Set the system to receive color bars.
2. Press → • ← on the remote commander to put the system into normal mode.
3. Cut off the power.
4. While depressing the adjustment buttons + and − simultaneusly, turn on the power. (SUB mode is obtained).
5. Adjust the color control so that the B out waveform (pin ⑤ of C board connector CNC72) is as shown in the figure below.
6. Depress the ◇ (store) button of the remote commander. (SUB mode is released)



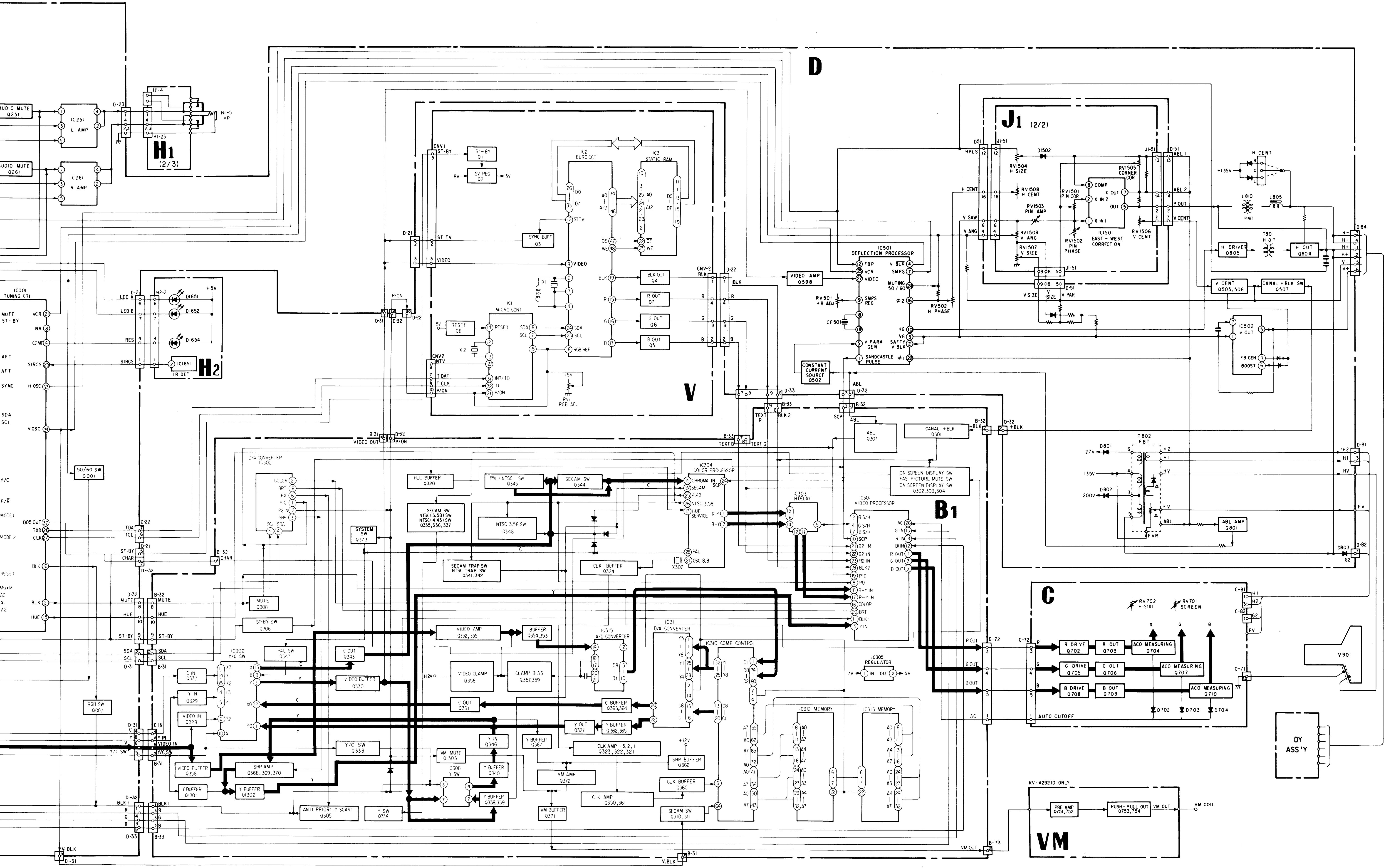


SECTION 5
DIAGRAMS

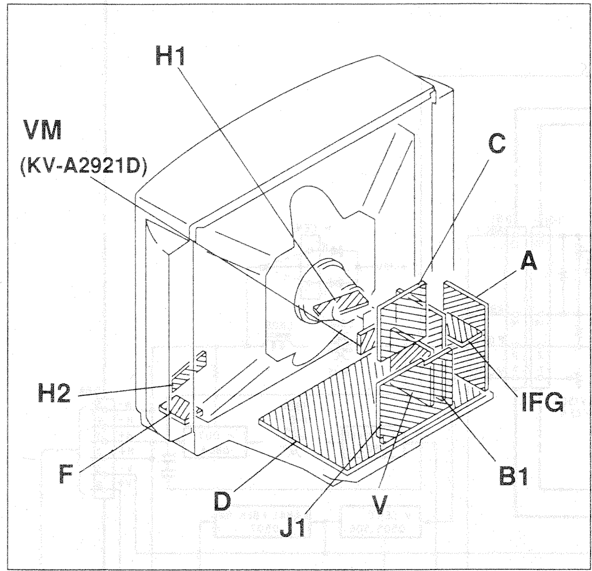
5-1. BLOCK DIAGRAM



F
A
J1 (1/2)
H1 (1/3)
H1 (2/3)
H1 (3/3)
AC IN
F1601
POWER S1701
F-61
F-62
TU101 UV816PLL
SCL SDA AGC IF IF
TO IFG BOARD IFG-13
VIF101 IFG389S
SIF
VIDEO
AFT
AGC
NICAM BUFF Q181
MPX
IC103 EXPANDER
SDA
SCL
PRC
MUTE SW Q125,126
AUDIO AMP Q115,116
AUDIO AMP Q113,114
4 LEVEL
L OUT
R OUT
J1403 (Y/C)
COLOR IN
V IN
V OUT
L OUT
L IN
R OUT
R IN
MODE
IC1403 (1/2) COMPOSITE Y/C SW
TV LINE C SW IC1403 (2/2)
Y OUT BUFF Q1403
C OUT BUFF Q1404
Y OUT
C OUT
V OUT
IC1401 A/V SW
VIDEO OUT Q1401
VIDEO OUT BUFF Q1402
IC201 AUDIO CONT
AUDIO BUFF Q202
AUDIO BUFF Q201
AUDIO OUT
CN1401
LED 1
LED 2
IC1402 SCART VIDEO OUT
J1402 (R,G,B)
BLK
MODE 1
MODE 2
VIDEO
V TV IN
F/R
Y/C
T601 SRT
THP601
LF1601 LF1602
LF1603
D601
FAST ON/OFF Q604
+12V RECT D606
IC601 PRIMARY SMPS CTL
REG OUT Q602
+135V RECT D611
+ 135V
+ 14V
ST-BY SW Q603
12V REG IC608
+12V
D623
D624
ST-BY SW Q606,609
+14V RECT D610
12V REG Q607
ST-BY SW Q601
ST-BY SW Q605
+7V RECT D612
5V REG IC604
7V
5V
AF V RECTIFIER D613, 614
T602
TPT
ST-BY SW Q608
MUTE SW Q609
VOL DET. Q271
AUDIO MUTE Q251
AUDIO MUTE Q261
IC251 L AMP
IC261 R AMP
D-23
H1-4
H1-23
D-45
D-41
D-12
D-11
D-42
IC003 AFT CONPARATOR
SYNC SEP Q003,004
D012
IC001 TUNING CTL
MUTE
ST-BY
AFT
SYNC
SDA
SCL
VCR
NR
C2MT
SIRCS
H OSC
V OSC
CF001
IC005 MEMORY
Y/C SW Q005
F/R SW Q006
MODE 1 SW Q008
MODE 2 SW Q007
RESET Q010
DOS OUT
TXD
CLK
BLK
HUE
50/60 SW Q001
RGB SW Q002
IC002 ON SCREEN DISP
S1651 MODE
S1653
S1652
50/60Hz
D-2
H2-2
LED A
LED B
RES
D1651
D1652
D1654
IC1651 IR DET
D-22
TDA
TCL
D-21
ST-BY
CHAR
D-32
B-32
D-31
B-31
C IN
Y IN
VIDEO IN
Y/C SW
C IN Q332
Y IN Q329
VIDEO IN Q328
VIDEO BUFF Q356
Y BUFFER Q1301
BLK I
R
G
B
D-33
B-33
V BLK


D
J1 (2/2)
H1 (2/3)
H2
V
B1
C
VM
AUDIO MUTE Q251
AUDIO MUTE Q261
IC251 L AMP
IC261 R AMP
H1-5 HP
IC001 TUNING CTL
D1651
D1652
D1654
IC1651 IR DET
ST-BY Q1
5V REG Q2
IC2 EURO CCT
IC3 STATIC-RAM
SYNC BUFF Q3
IC1 MICRO CONT
RESET Q8
RV1 RGB ADJ
BLK OUT Q4
R OUT Q7
G OUT Q6
B OUT Q5
VIDEO AMP Q598
IC501 DEFLECTION PROCESSOR
RV501 +B ADJ
CF501
RV502 H PHASE
CONSTANT CURRENT SOURCE Q502
RV1504 H SIZE
RV1508 H CENT
RV1503 PIN AMP
RV1509 V ANG
RV1507 V SIZE
RV1501 PIN COR
RV1502 PIN PHASE
RV1505 CORNER COR
RV1506 V CENT
IC1501 EAST-WEST CORRECTION
D1502
H CENT
L810 PMT
L805
T801 H.D.T
H DRIVER Q805
H OUT Q804
V CENT Q505,506
CANAL +BLK SW Q507
IC502 V OUT
FB GEN
BOOST
ABL Q307
CANAL +BLK Q301
ON SCREEN DISPLAY SW FAS PICTURE MUTE SW ON SCREEN DISPLAY SW Q302,303,304
T802 FBT
D801
D802
D803
ABL AMP Q801
D/A CONVERTER IC302
HUE BUFFER Q320
PAL/NTSC SW Q345
SECAM SW Q344
IC304 COLOR PROCESSOR
SECAM SW NTSC(3.58) SW NTSC(4.43) SW Q335,336,337
NTSC 3.58 SW Q348
SYSTEM SW Q373
SECAM TRAP SW NTSC TRAP SW Q341,342
CLK BUFFER Q324
X302
IC303 1H DELAY
IC301 VIDEO PROCESSOR
50/60 SW Q001
MUTE Q308
ST-BY SW Q306
VIDEO AMP Q352,355
BUFFER Q354,353
IC315 A/D CONVERTER
IC311 D/A CONVERTER
IC310 COMB CONTROL
IC305 REGULATOR
IC306 Y/C SW
PAL SW Q347
C OUT Q343
VIDEO BUFFER Q330
VIDEO CLAMP Q358
CLAMP BIAS Q357,359
C IN Q332
Y IN Q329
VIDEO IN Q328
C OUT Q331
C BUFFER Q363,364
Y OUT Q327
Y BUFFER Q362,365
RGB SW Q002
Y/C SW Q333
Y IN Q346
Y BUFFER Q367
CLK AMP -3,2,1 Q323,322,321
VIDEO BUFFER Q356
SHP AMP Q368,369,370
VM MUTE Q1303
IC308 Y SW
Y BUFFER Q340
VM AMP Q372
SHP BUFFER Q366
CLK BUFFER Q360
IC312 MEMORY
IC313 MEMORY
Y BUFFER Q1301
Y BUFFER Q1302
ANTI PRIORITY SCART Q305
Y SW Q334
Y BUFFER Q338,339
VM BUFFER Q371
CLK AMP Q350,361
SECAM SW Q310,311
RV702 H-STAT
RV701 SCREEN
R DRIVE Q702
R OUT Q703
ACO MEASURING Q704
G DRIVE Q705
G OUT Q706
ACO MEASURING Q707
B DRIVE Q708
B OUT Q709
ACO MEASURING Q710
AUTO CUTOFF
D702
D703
D704
V901
DY ASS'Y
KV-A2921D ONLY
PRE AMP Q751,752
PUSH-PULL OUT Q753,754
VM COIL

5-2. CIRCUIT BOARDS LOCATION


H1
VM
(KV-A2921D)
C
A
H2
IFG
F
B1
D
V
J1

Reference information

RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RW	NONFLAMMABLE WIREWOUND
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

5-3. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

— Conductor Side —

Note:

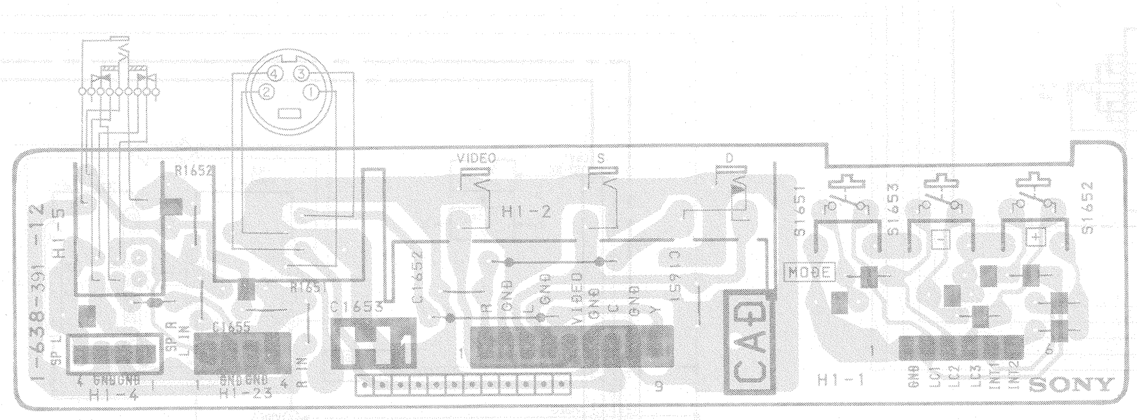
- All capacitors are in μF unless otherwise noted.
  pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All electrolytics are in 50V unless otherwise specified.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000KΩ
- Indication of resistance, which does not have one for rating electrical power, is as follows.

  Pitch: 5 mm
  Rating electrical power 1/4W
- METAL FILM (:RN) resistors in 1%, 1/6W unless otherwise secified.
- ⊟: nonflammable resistor.
- △: internal component.
- ☐: panel designation, or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ⏚: earth-ground.
- ⏚: earth-chassis.
- All voltages are in V.
- Voltage are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a color-bar signal input.
- Voltage variations may be noted due to normal production tolerance.
- ▬: B+ bus.
- ▨: signal path. (RF)
- Circuled numbers are waveform references.

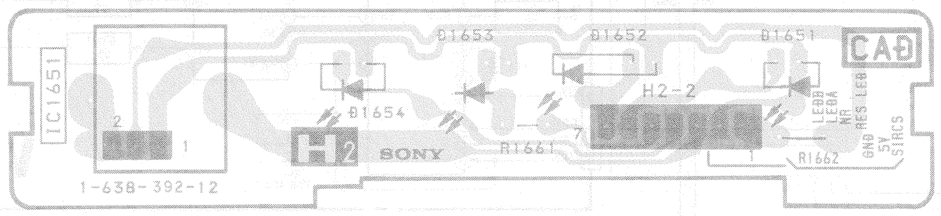
> **Note:**
> The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

H1 [CONTROL SW, AV INPUT, HEADPHONE] **H2** [SIRCS RECEIVER, INDICATOR] **F** [AC IN, POWER SW]

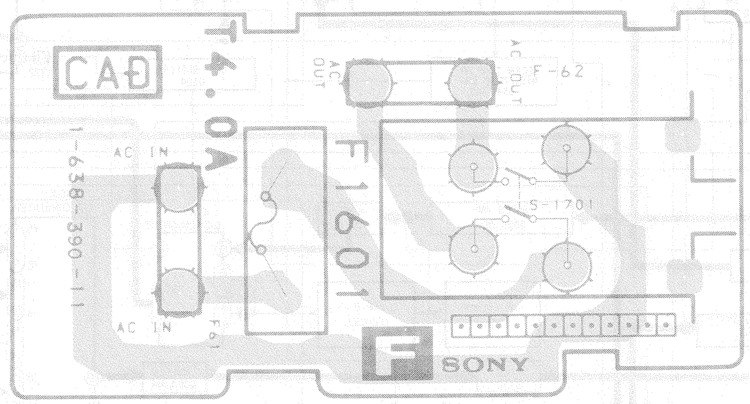
— H1 Board —


VIDEO
S
H1-2
H1-4
H1-23
H1-1
H1-5
1-638-391-12
R1652
R1651
C1653
C1655
S1651
S1653
S1652
MODE
CAD
SONY

— H2 Board —

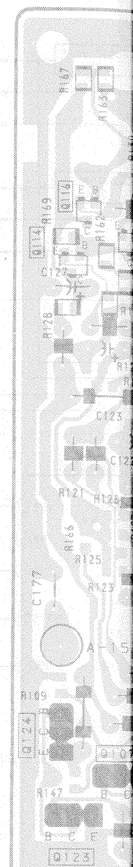

IC1651
D1653
D1652
D1651
D1654
H2-2
R1661
R1662
1-638-392-12
CAD
H2
SONY

— F Board —

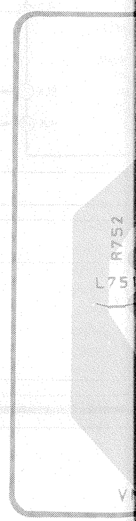

CAD
T4.0A
F1601
AC IN
AC OUT
F-62
S-1701
1-638-390-11
F
SONY

A [TUNER

— A Board

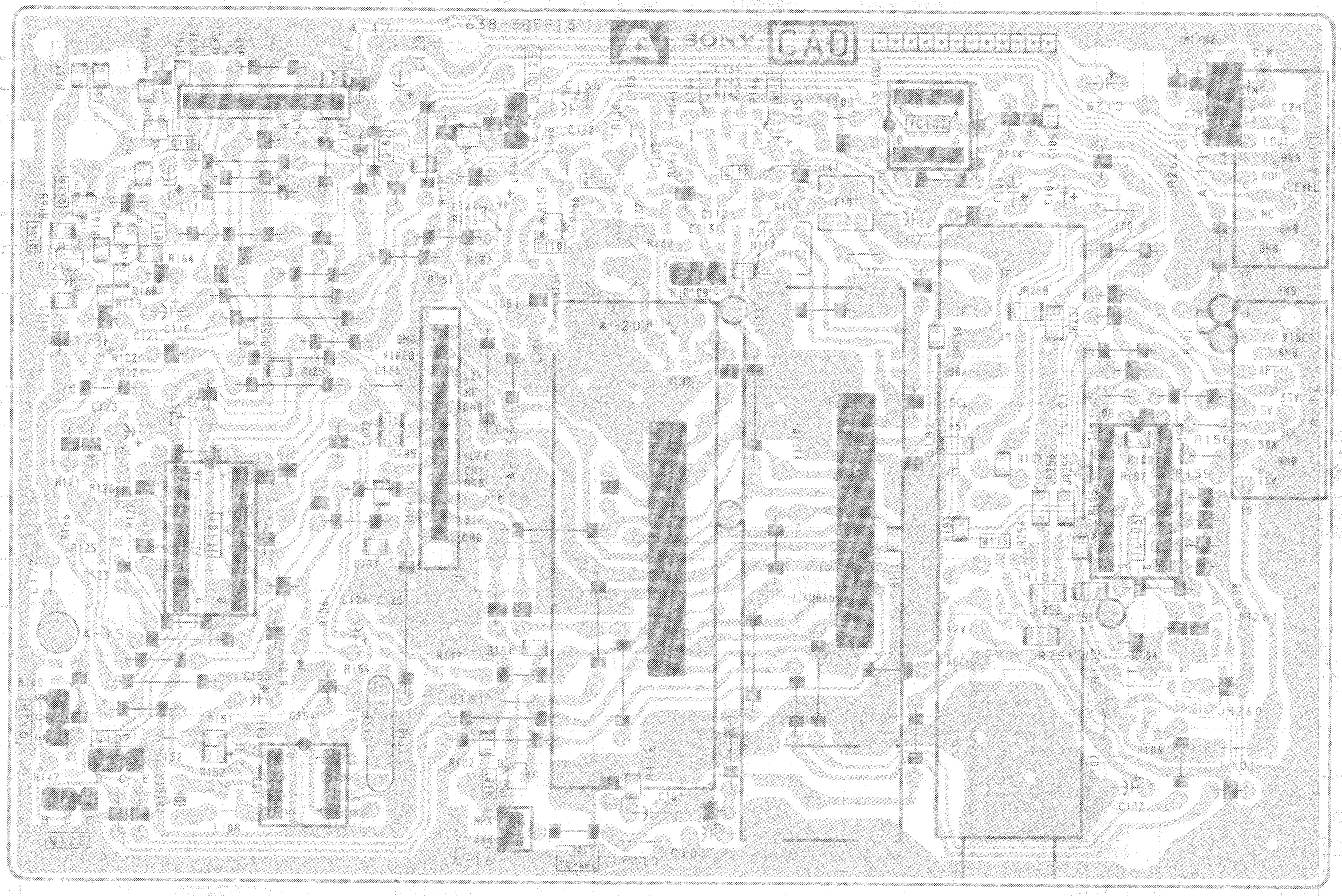


— VM Bo

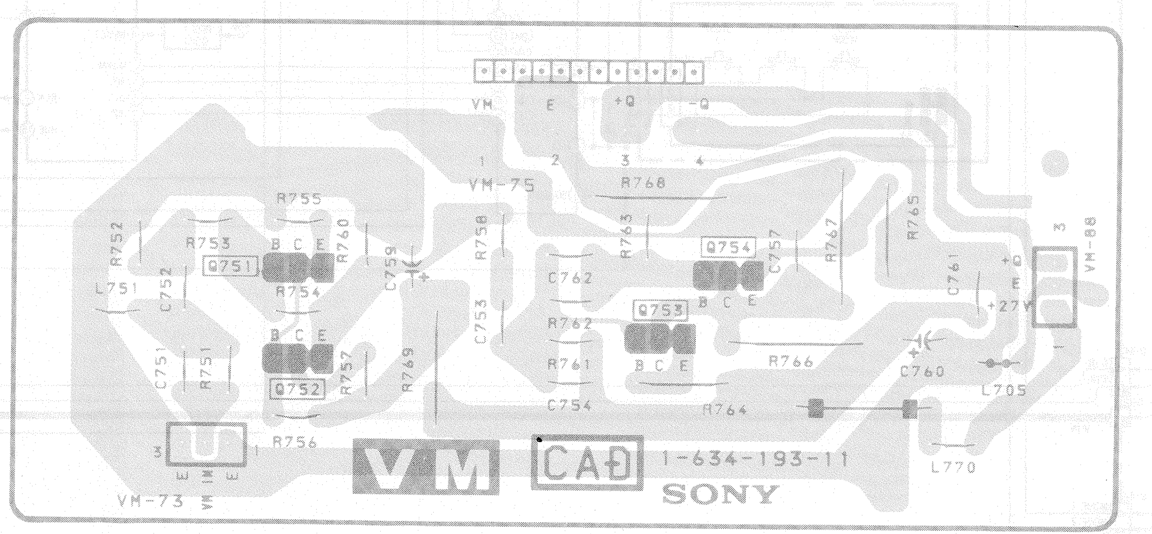


A [TUNER, SIF, VIF] **VM** [VM AMP]

— A Board —

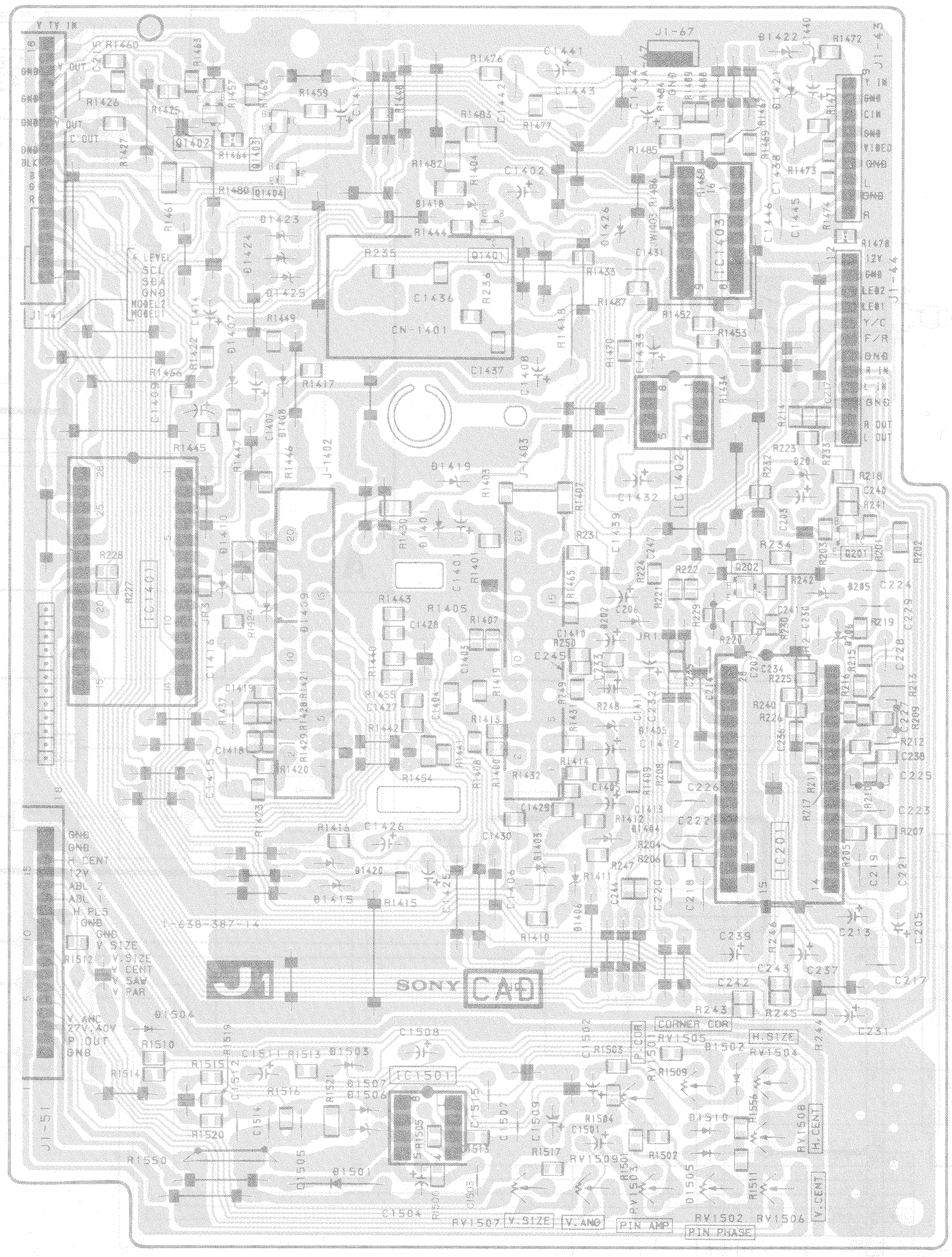

1-638-385-13
A
SONY
CAD
IC101
IC102
IC103
A-20
A-15
A-16
A-17
A-11
A-12
TU-ABC

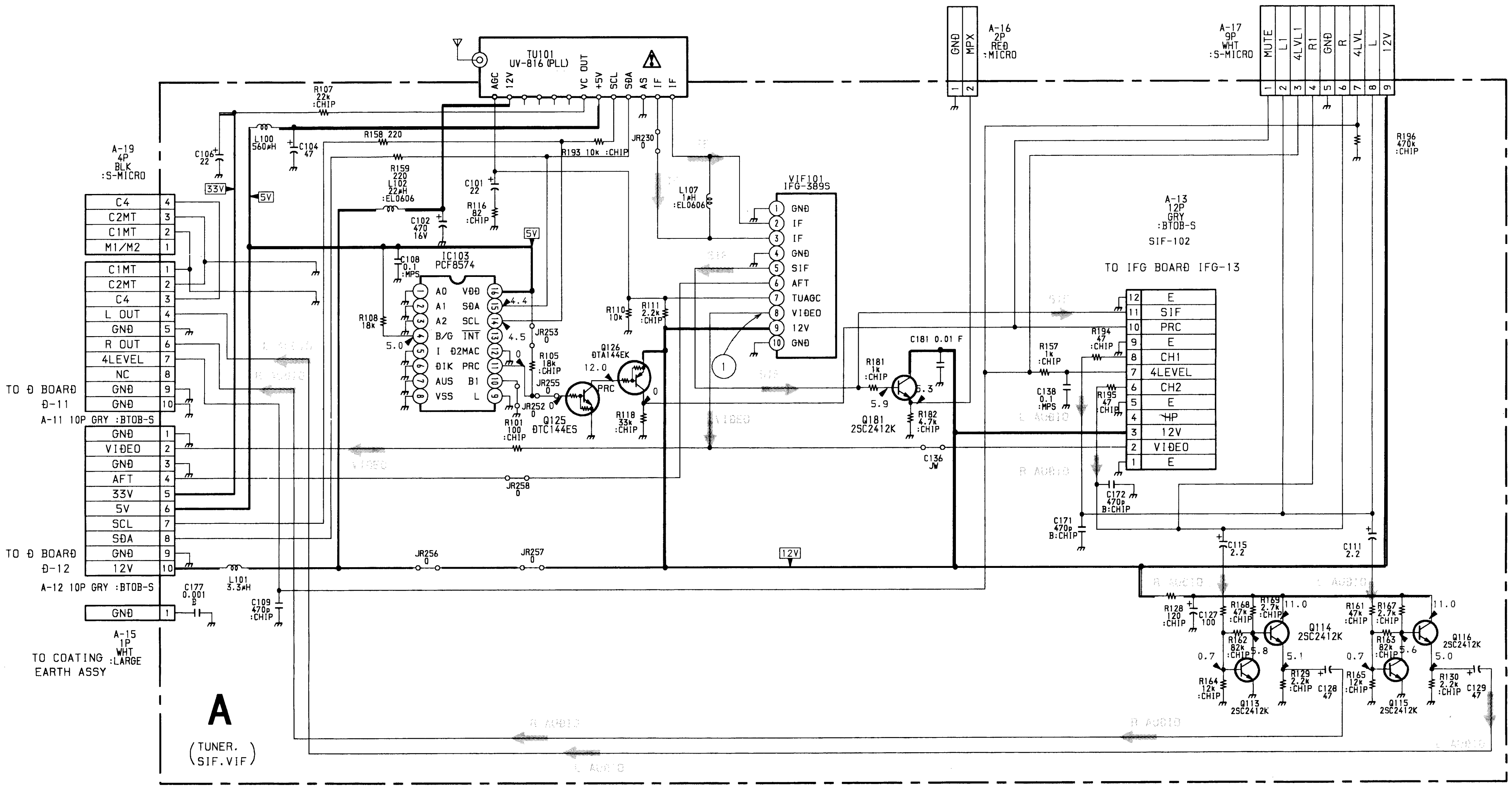
— VM Board — (KV-A2921D ONLY)


VM
E
+Q
-Q
VM-75
VM-88
VM-73
Q751
Q752
Q753
Q754
+27V
VM
CAD
1-634-193-11
SONY

J1 AUDIO CONTROL, AV INPUT
Y/C INPUT, SCART VIDEO OUT,
EAST-WEST CORRECTION

— J1 Board —


J1-67
J1-44
J1-41
J1-51
IC1401
IC1402
IC1403
IC1501
IC201
CN-1401
1-638-387-14
J1
SONY
CAD
CORNER COR
H.SIZE
H.CENT
V.SIZE
V.ANG
PIN AMP
PIN PHASE
V.CENT

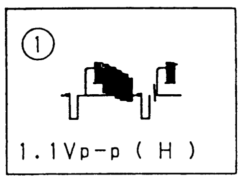

TU101
UV-816 (PLL)
AGC 12V VC OUT +5V SCL SDA AS IF IF
VIF101
IFG-389S
GND IF IF GND SIF AFT TUAGC VIDEO 12V GND
IC103
PCF8574
A0 VDD A1 SDA A2 SCL B/G INT I D2MAC DIK PRC AUS B1 VSS L
Q125
DTC144ES
Q126
DTA144EK
Q181
2SC2412K
Q113
2SC2412K
Q114
2SC2412K
Q115
2SC2412K
Q116
2SC2412K
A-19
4P
BLK
:S-MICRO
C4 C2MT C1MT M1/M2
C1MT C2MT C4 L OUT GND R OUT 4LEVEL NC GND GND
TO D BOARD
D-11
A-11 10P GRY :BTOB-S
GND VIDEO GND AFT 33V 5V SCL SDA GND 12V
TO D BOARD
D-12
A-12 10P GRY :BTOB-S
GND
A-15
1P
WHT
:LARGE
TO COATING EARTH ASSY
A-16
2P
RED
:MICRO
GND MPX
A-17
9P
WHT
:S-MICRO
MUTE L1 4LVL1 R1 GND R 4LVL L 12V
A-13
12P
GRY
:BTOB-S
SIF-102
TO IFG BOARD IFG-13
E SIF PRC E CH1 4LEVEL CH2 E HP 12V VIDEO E
33V
5V
12V
R AUDIO
L AUDIO
VIDEO
SIF
IF
A
(TUNER, SIF, VIF)

B-SS4172<AEP>-A..

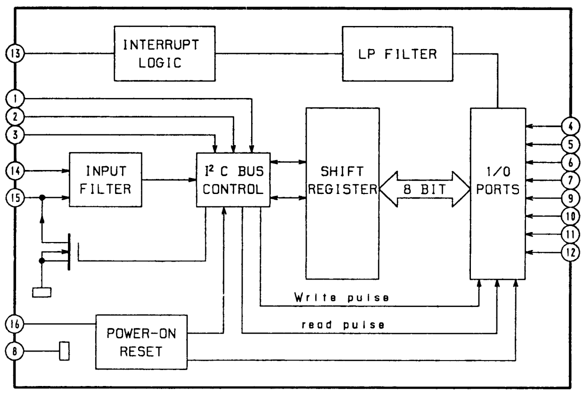
— A Board —

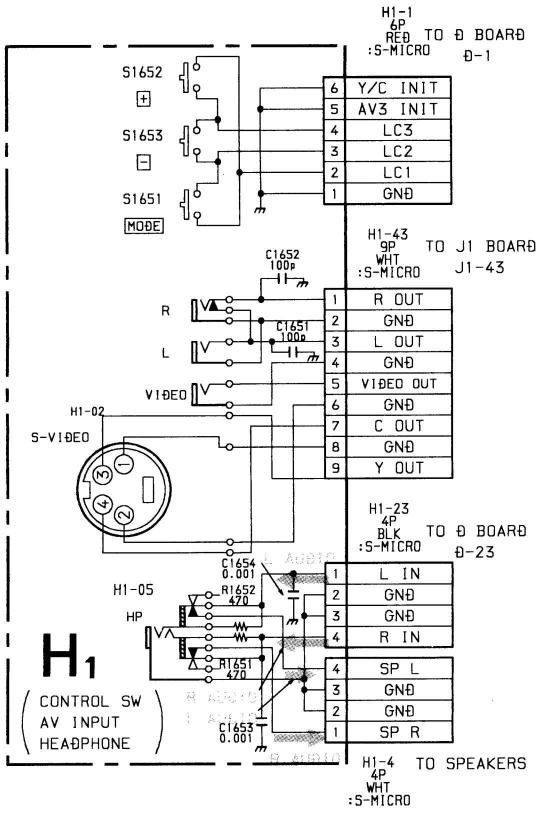
IC103	PCF8574	EXPANDER
Q113	2SC2412K	AUDIO AMP
Q114	2SC2412K	AUDIO AMP
Q115	2SC2412K	AUDIO AMP
Q116	2SC2412K	AUDIO AMP
Q125	DTC144ES	MUTE SW
Q126	DTA144EK	MUTE SW
Q181	2SC2412K	NICAM BUFFER

— A Board —

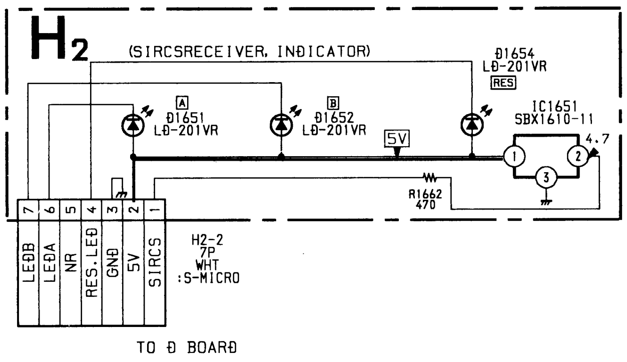


A BOARD IC103 PCF8574


INTERRUPT LOGIC
LP FILTER
INPUT FILTER
I² C BUS CONTROL
SHIFT REGISTER
8 BIT
I/O PORTS
Write pulse
read pulse
POWER-ON RESET


H1-1
6P
RED
:S-MICRO
TO D BOARD
D-1
S1652
S1653
S1651
MODE
Y/C INIT
AV3 INIT
LC3
LC2
LC1
GND
H1-43
9P
WHT
:S-MICRO
TO J1 BOARD
J1-43
R OUT GND L OUT GND VIDEO OUT GND C OUT GND Y OUT
S-VIDEO
H1-02
H1-23
4P
BLK
:S-MICRO
TO D BOARD
D-23
L IN GND GND R IN
H1-05
HP
SP L GND GND SP R
H1-4
4P
WHT
:S-MICRO
TO SPEAKERS
H1
(CONTROL SW AV INPUT HEADPHONE)

B-SS4161<UK.>-H1.


H2
(SIRCSRECEIVER, INDICATOR)
D1651
LD-201VR
D1652
LD-201VR
D1654
LD-201VR
RES
IC1651
SBX1610-11
5V
R1662
470
LEDB LEDA NR RES.LED GND 5V SIRCS
H2-2
7P
WHT
:S-MICRO
TO D BOARD
D-2

B-SS4161<UK.>-H2.

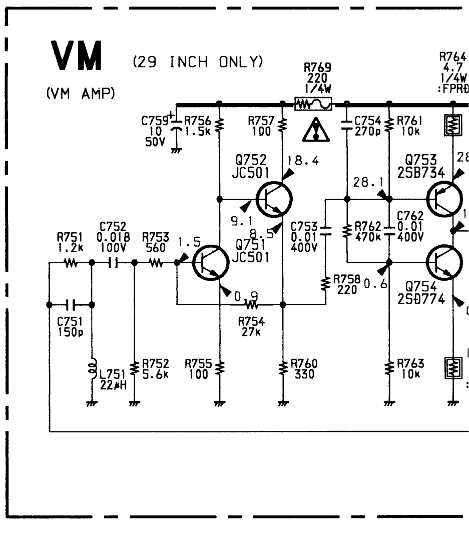
— H2 Board —

IC1651	SBX1610-11	INFRARED RECIVER
D1651	LD-201VR	AUDIO CHANNEL A INDICATOR
D1652	LD-201VR	AUDIO CHANNEL B INDICATOR
D1654	LD-201VR	RESET INDICATOR

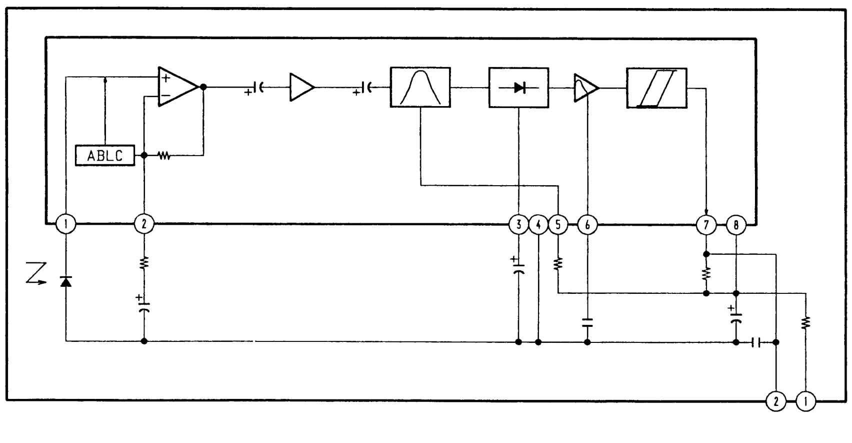
— VM Board — (KV-A2921D ONLY)

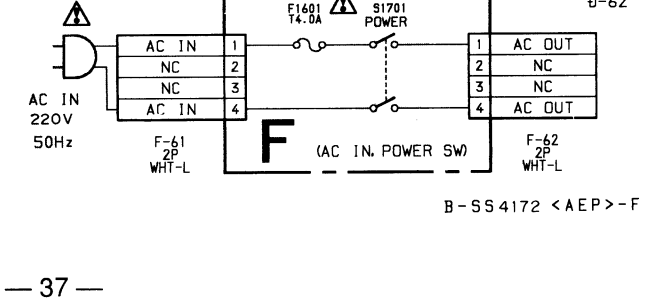
Q751	JC501	REF-AMP
Q752	JC501	REF-AMP
Q753	2SB734	PUSH-PULL
Q754	2SD774	PUSH-PULL

— VM Board — (KV-A2921D ONLY)

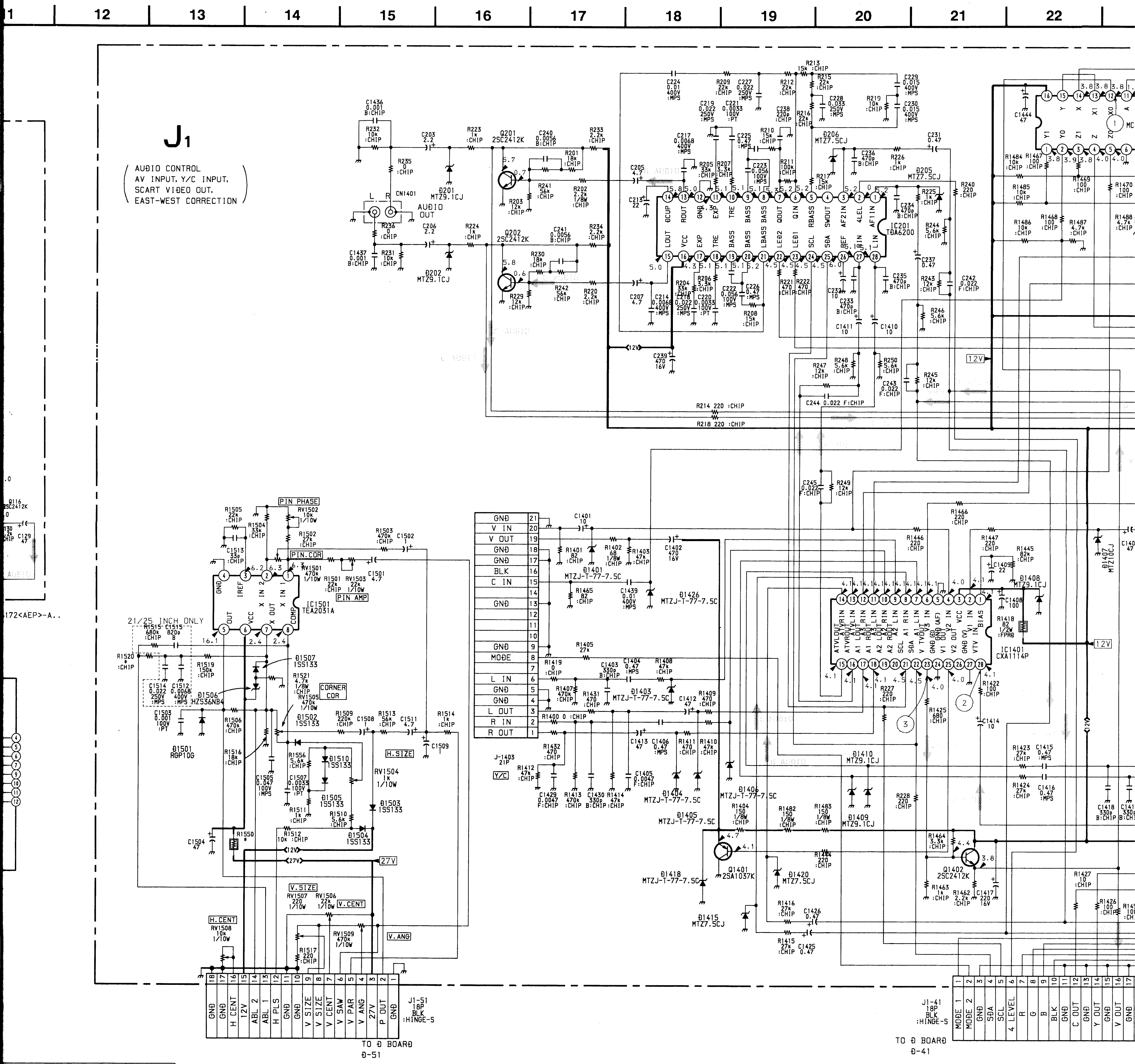

VM
(29 INCH ONLY)
(VM AMP)
Q752
JC501
Q751
JC501
Q753
2SB734
Q754
2SD774
R769
220
1/4W

H2 BOARD IC1651 SBX1610-11




TO D BOARD
D-62
AC IN NC NC AC IN
F1601
T4.0A
S1701
POWER
AC OUT NC NC AC OUT
AC IN
220V
50Hz
F-61
2P
WHT-L
F
(AC IN, POWER SW)
F-62
2P
WHT-L

B-SS4172 <AEP>-F


J1
AUDIO CONTROL
AV INPUT, Y/C INPUT,
SCART VIDEO OUT,
EAST-WEST CORRECTION
IC201 TDA6200
IC1401 CXA1114P
IC1501 TEA2031A
Q201 2SC2412K
Q202 2SC2412K
Q1401 2SA1037K
Q1402 2SC2412K
CN1401
AUDIO OUT
PIN PHASE
PIN.COR
PIN AMP
CORNER COR
H.SIZE
V.SIZE
V.CENT
V.ANG
H.CENT
21/25 INCH ONLY
J-1403 21P
Y/C
GND
V IN
V OUT
BLK
C IN
MODE
L IN
L OUT
R IN
R OUT
12V
27V
J1-51 18P BLK :HINGE-S
TO D BOARD D-51
J1-41 18P BLK :HINGE-S
TO D BOARD D-41
GND GND H CENT 12V ABL 2 ABL 1 H PLS GND GND V SIZE V SIZE V CENT V SAW V PAR V ANG 27V P OUT GND
MODE 1 MODE 2 GND SDA SCL 4 LEVEL R G B BLK GND C OUT GND Y OUT GND GND

ATOR
ATOR

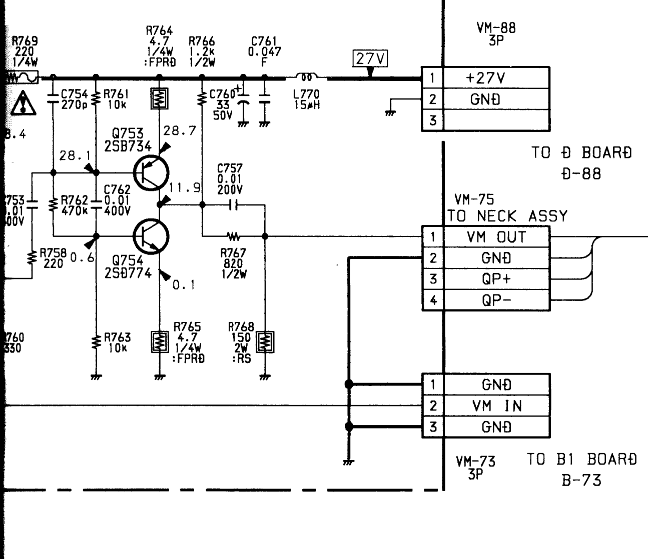
921D ONLY)

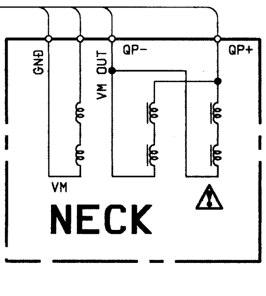
	REF-AMP
	REF-AMP
	PUSH-PULL OUT
	PUSH-PULL OUT

21D ONLY)

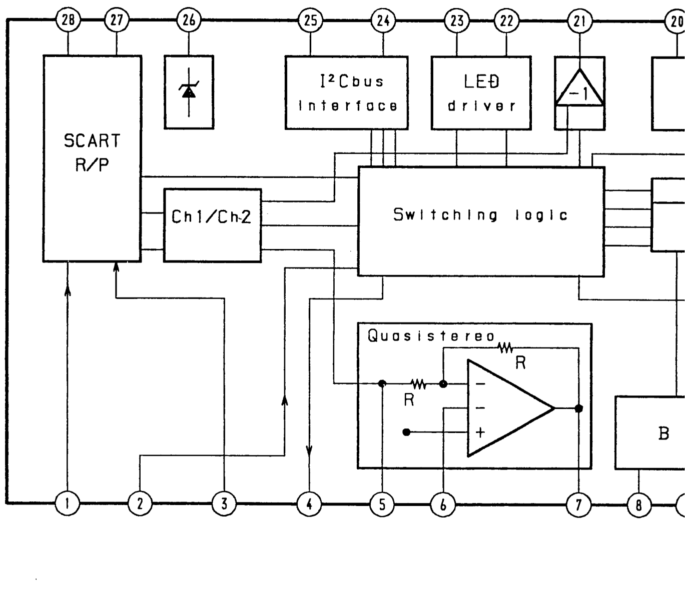
— J1 BOARD * MARK —

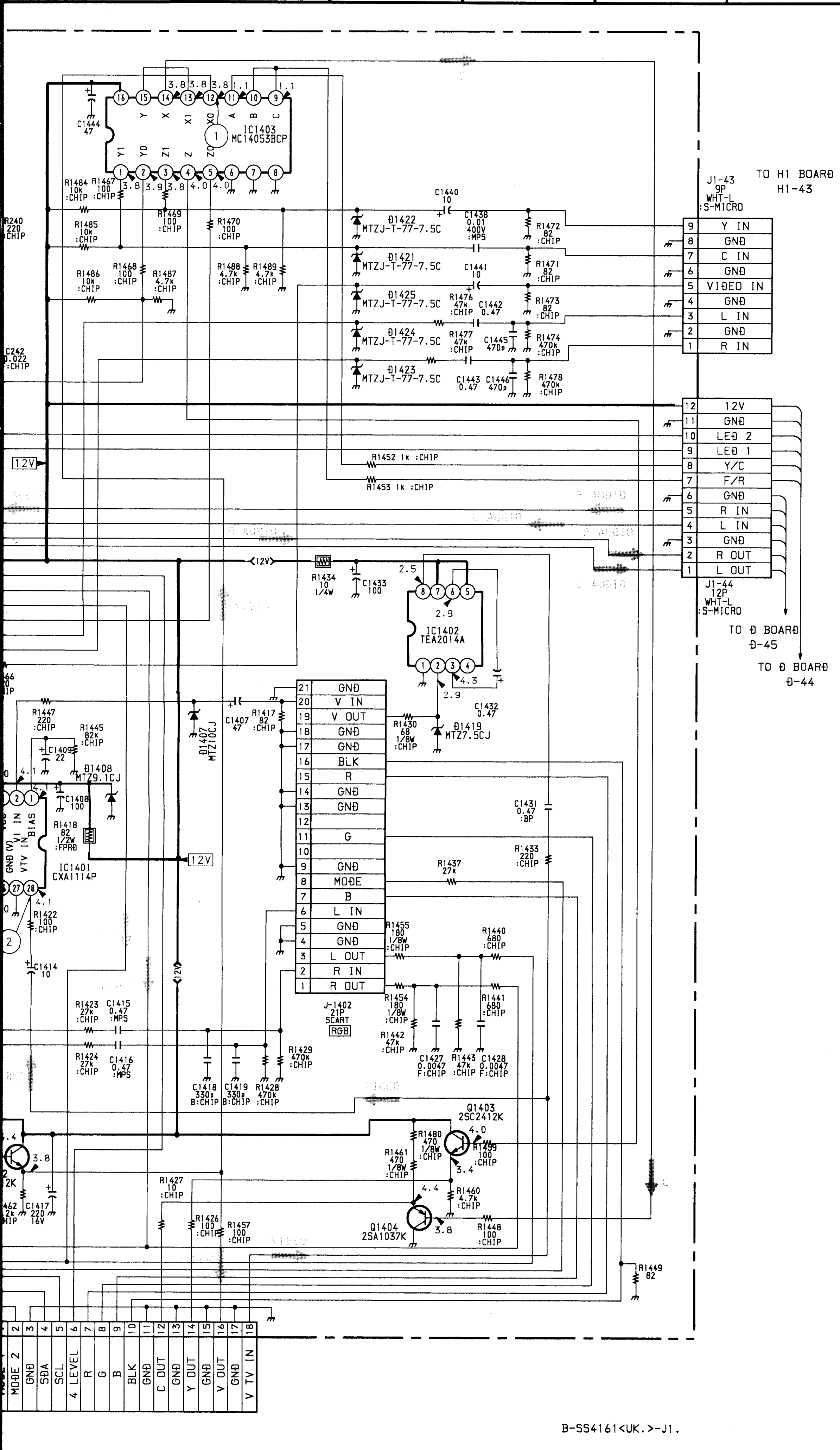
	KV-A2121D	KV-A2521D	KV-A2921D
C1512	0.0068 400V	0.0068 400V	——
C1514	0.022 250V	0.022 250V	——
C1515	820P	820P	——
R1515	680K	680K	——
R1520	470K 1/10W	470K 1/10W	390K 1/10W
R1550	JW (15)	JW (15)	1 1W

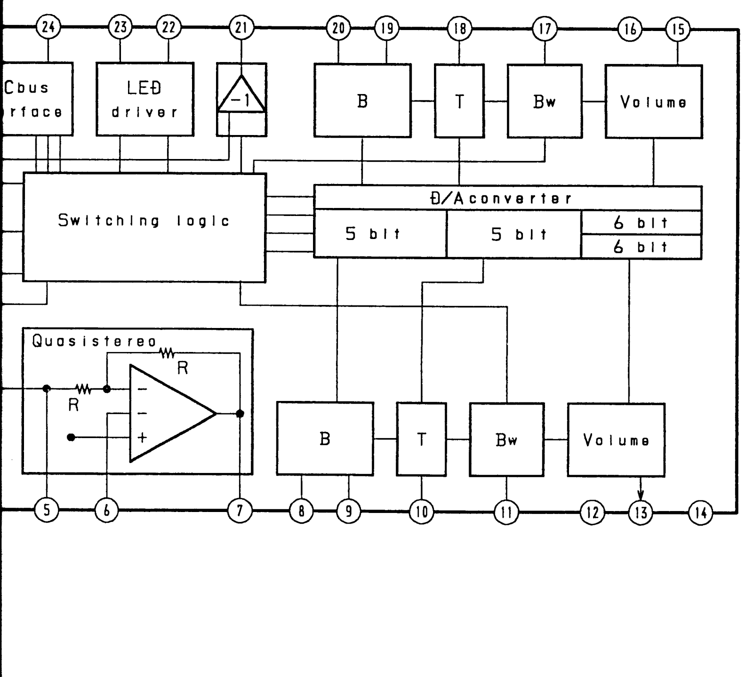

R769 220 1/4W
R764 4.7 1/4W :FPRD
R766 1.2k 1/2W
C761 0.047 F
27V
L770 15μH
C754 270p
R761 10k
C760 33 50V
Q753 2SB734
Q754 2SD774
C762 0.01 400V
R762 470k
C757 0.01 200V
R758 220
R763 10k
R765 4.7 1/4W :FPRD
R767 820 1/2W
R768 150 2W :RS
VM-88 3P
+27V
GND
TO D BOARD D-88
VM-75 TO NECK ASSY
VM OUT
QP+
QP-
VM IN
VM-73 3P
TO B1 BOARD B-73


GND
VM OUT
QP-
QP+
VM
NECK

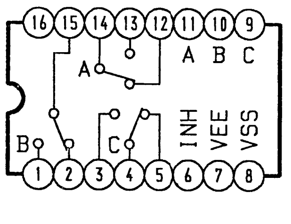
J1 BOARD IC201 TDA6200


SCART R/P
I²C bus interface
LED driver
-1
Ch1/Ch2
Switching logic
Quasistereo
R
R
B

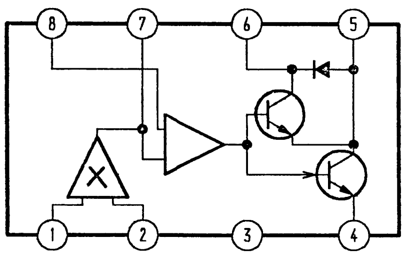

IC1403
MC14053BCP
C1444 47
TO H1 BOARD H1-43
J1-43 9P WHT-L :S-MICRO
Y IN
GND
C IN
GND
VIDEO IN
GND
L IN
GND
R IN
D1422 MTZJ-T-77-7.5C
D1421 MTZJ-T-77-7.5C
D1425 MTZJ-T-77-7.5C
D1424 MTZJ-T-77-7.5C
D1423 MTZJ-T-77-7.5C
12V
LED 2
LED 1
Y/C
F/R
R OUT
L OUT
J1-44 12P WHT-L :S-MICRO
TO D BOARD D-45
TO D BOARD D-44
R1452 1k :CHIP
R1453 1k :CHIP
IC1402
TEA2014A
D1419 MTZ7.5CJ
D1407 MTZ10CJ
D1408 MTZ9.1CJ
IC1401
CXA1114P
J-1402 21P SCART RGB
GND
V IN
V OUT
BLK
R
G
MODE
B
L IN
L OUT
R IN
R OUT
Q1403 2SC2412K
Q1404 2SA1037K
R1449 82
MODE 2
GND
SDA
SCL
4 LEVEL
R
G
B
BLK
GND
C OUT
GND
Y OUT
GND
V OUT
GND
V TV IN
B-SS4161<UK.>-J1.


Cbus
rface
LED
driver
-1
B
T
Bw
Volume
Switching logic
D/Aconverter
5 bit
5 bit
6 bit
6 bit
Quasistereo
R
R
B
T
Bw
Volume

J1 BOARD IC1403 MC14053BCP


A B C
A
B
C
INH
VEE
VSS

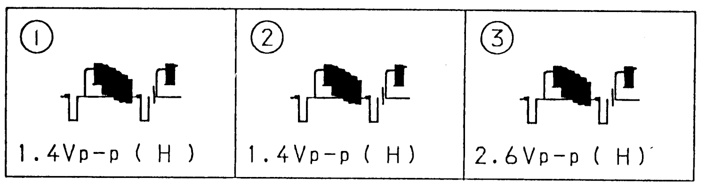
J1 BOARD IC1501 TEA2031A



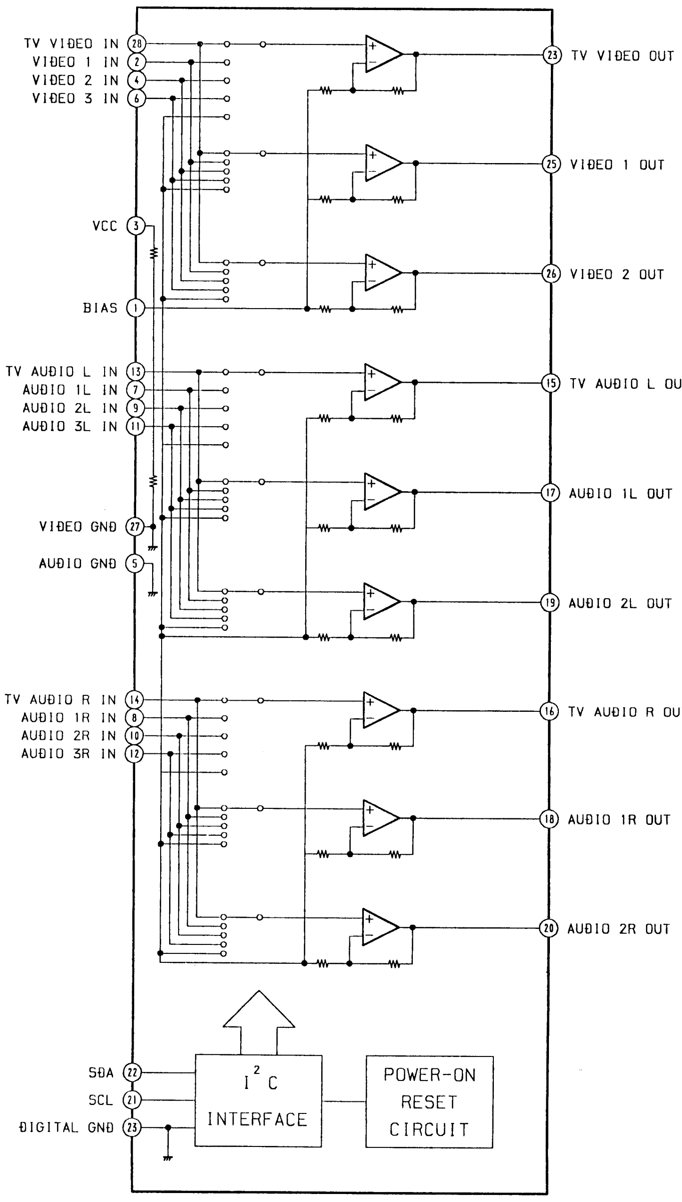
— J1 Board —

IC201	TDA6200	AUDIO CONTROL
IC1401	CXA1114P	AV SW
IC1402	TEA2014A	SCART VIDEO OUT
IC1403	MC14053BCP	COMPOSITE Y/C SW
IC1501	TEA2031A	EAST-WEST CORRECTION
Q201	2SC2412K	AUDIO R BUFF
Q202	2SC2412K	AUDIO L BUFF
Q1401	2SA1037K	VIDEO OUT
Q1402	2SC2412K	VIDEO OUT BUFF
Q1403	2SC2412K	Y OUT BUFF
Q1404	2SA1037K	C OUT BUFF
D201	MTZJ-T-77-9.1C	PROTECT
D202	MTZJ-T-77-9.1C	PROTECT
D205	MTZJ-T-77-7.5C	PROTECT
D206	MTZJ-T-77-7.5C	PROTECT
D1401	MTZJ-T-77-7.5C	PROTECT
D1403	MTZJ-T-77-7.5C	PROTECT
D1404	MTZJ-T-77-7.5C	PROTECT
D1405	MTZJ-T-77-7.5C	PROTECT
D1406	MTZJ-T-77-7.5C	PROTECT
D1407	MTZN-T-77-10C	PROTECT
D1408	MTZJ-T-77-9.1C	REG
D1409	MTZJ-T-77-9.1C	PROTECT
D1410	MTZJ-T-77-9.1C	PROTECT
D1415	MTZJ-T-77-7.5C	PROTECT
D1418	MTZJ-T-77-7.5C	PROTECT
D1419	MTZJ-T-77-7.5C	PROTECT
D1420	MTZJ-T-77-7.5C	PROTECT
D1421	MTZJ-T-77-7.5C	PROTECT
D1422	MTZJ-T-77-7.5C	PROTECT
D1423	MTZJ-T-77-7.5C	PROTECT
D1424	MTZJ-T-77-7.5C	PROTECT
D1425	MTZJ-T-77-7.5C	PROTECT
D1426	MTZJ-T-77-7.5C	PROTECT
D1501	RGP10GPKG23	PROTECT
D1502	1SS133	DECOUPLING H SIZE
D1503	1SS133	CLIPPING V PARABORA
D1504	1SS133	CLIPPING H PULSE
D1505	1SS133	REG
D1506	HZS36NB4TD	PROTECT
D1507	1SS133	PROTECT
D1510	1SS133	REG

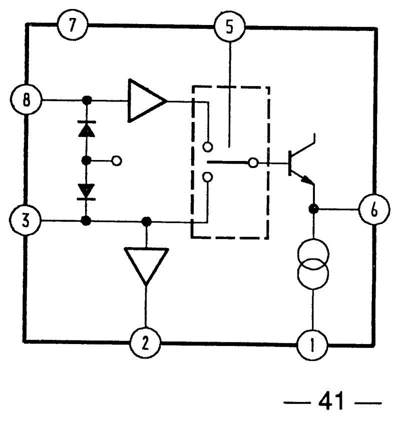
— J1 Board —



J1 BOARD IC1401 CXA1114P


TV VIDEO IN
VIDEO 1 IN
VIDEO 2 IN
VIDEO 3 IN
VCC
BIAS
TV AUDIO L IN
AUDIO 1L IN
AUDIO 2L IN
AUDIO 3L IN
VIDEO GND
AUDIO GND
TV AUDIO R IN
AUDIO 1R IN
AUDIO 2R IN
AUDIO 3R IN
SDA
SCL
DIGITAL GND
TV VIDEO OUT
VIDEO 1 OUT
VIDEO 2 OUT
TV AUDIO L OUT
AUDIO 1L OUT
AUDIO 2L OUT
TV AUDIO R OUT
AUDIO 1R OUT
AUDIO 2R OUT
I²C INTERFACE
POWER-ON RESET CIRCUIT

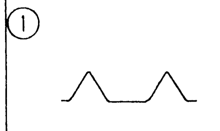
J1 BOARD IC1402 TEA2014A

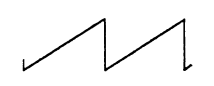


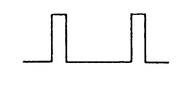
— D BOARD * MARK —

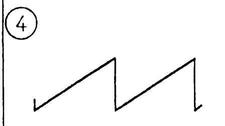
	KV-A2121D	KV-A2521D	KV-A2921D
C519	0.47	0.47	0.33
C526	27P	27P	22P
C536	4.7 16V	10 16V	10 16V
C617	220 25V	100 50V	100 50V
C620	1 63V	0.47 50V	0.47 50V
C811	1 200V	2 200V	2 200V
C815	1 200V	1 200V	0.82 200V
C817	0.0106 1.4KV	0.015 1.4KV	0.017 1.4KV
C821	680P 2KV	680P 2KV	470P 2KV
R525	1K 1/10W	1K 1/10W	——
R531	——	120K 1/10W	120K 1/10W
R532	——	——	——
R533	180 1/10W	0 1/10W	0 1/10W
R535	4.7M 1/4W	2.2M 1/4W	2.2M 1/4W
R545	39K 1/10W	22K 1/10W	22K 1/10W
R547	5.6K 1/10W	3.3K 1/10W	3.3K 1/10W
R548	1.2 1W	1 1W	1 1W
R549	470 2W	390 2W	390 2W
R552	1.2K 1W	——	——
R561	——	——	270K 1/10W
R570	——	——	680 1/10W
R600	——	1 1/4W	1 1/4W
R603	15 3W	12 3W	12 3W
R607	4.7K 1/10W	4.7K 1/10W	5.6K 1/10W
R631	27K 2W	27K 2W	——
R643	0.15 2W	0.12 2W	0.12 2W
R811	100 1W	22 2W	22 2W
R812	75K 1/2W	68K 1/2W	51K 1/2W
R825	1 1W	0.47 1W	0.47 1W
R5503	4.7 1/10W	4.7 1/10W	10 1/10W
R5506	——	——	12K 1/10W
JW202	——	——	5MM
JW203	5MM	5MM	——
JW204	5MM	5MM	——
JW205	——	——	5MM
JW206	5MM	5MM	——
JW207	5MM	5MM	——
JW216	15MM	15MM	——
JW229	10MM	10MM	——
L801	——	——	3.9MH
D88	——	——	3P CONNECTOR
D271	MTZJ12C	MTZJ13B	MTZJ13B
D506	DA204K	DA204K	——
D509	——	1SS133	1SS133
D514	JW (5)	JW (5)	1SS133
D515	——	——	1SS133
D807	——	ERC06-15S	ERC06-15S
D808	ERD28-08S	ERD29-08J	ERD29-08J

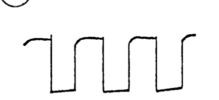
— D Board —

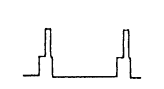
①

1.4Vp-p (H)

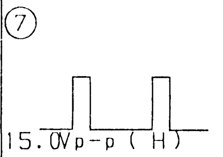
②

3.0Vp-p (V)

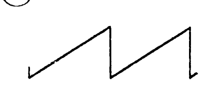
③

5.0Vp-p (V)

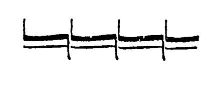
④

3.0Vp-p (V)

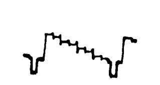
⑤

4.4 Vp-p (H)

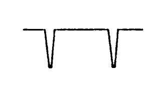
⑥

11.0Vp-p (H)

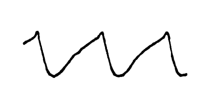
⑦

15.0Vp-p (H)

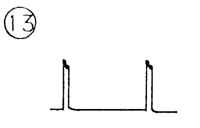
⑧

3.6Vp-p (H)

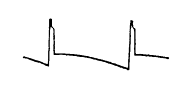
⑨

0.8Vp-p(503KMz)

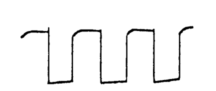
⑩

1.4Vp-p (H)

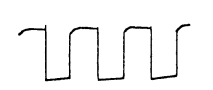
⑪

0.8Vp-p (V)

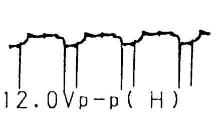
⑫

2.2Vp-p (V)

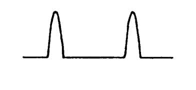
⑬

32.0 Vp-p(V)

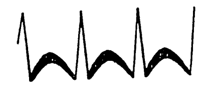
⑭

28.0Vp-p(V)

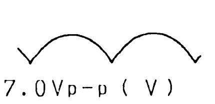
⑮

3.6Vp-p (H)

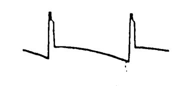
⑯

250Vp-p (H)

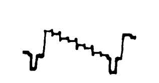
⑰

12.0Vp-p(H)

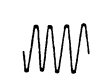
⑱

1400Vp-p(H)

⑲

220Vp-p (H)

⑳

7.0Vp-p (V)

㉑

54.0Vp-p (V)

㉒

1.4Vp-p (H)

㉓

4.4 Vp-p(12MHz)

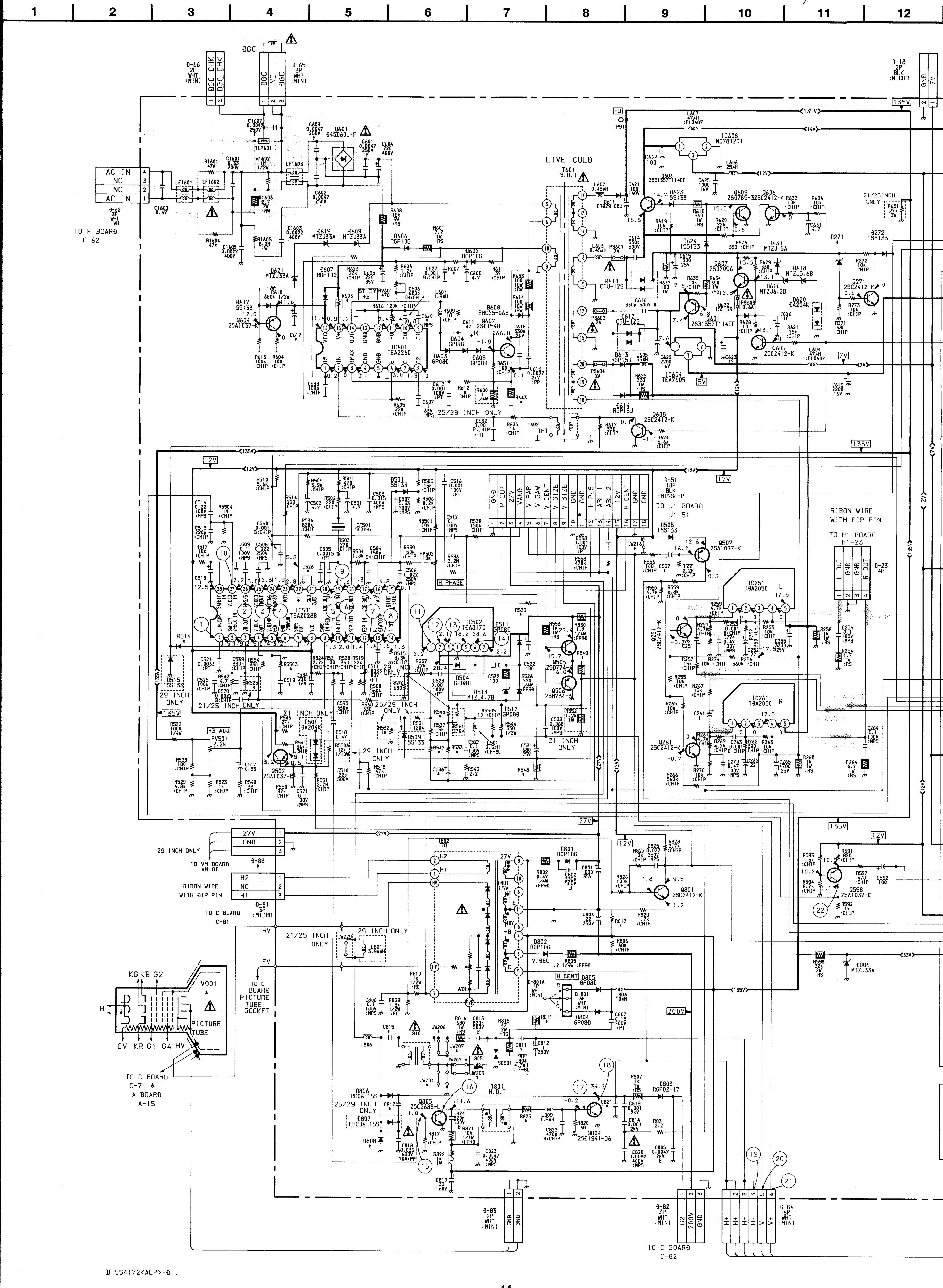
— D Board —

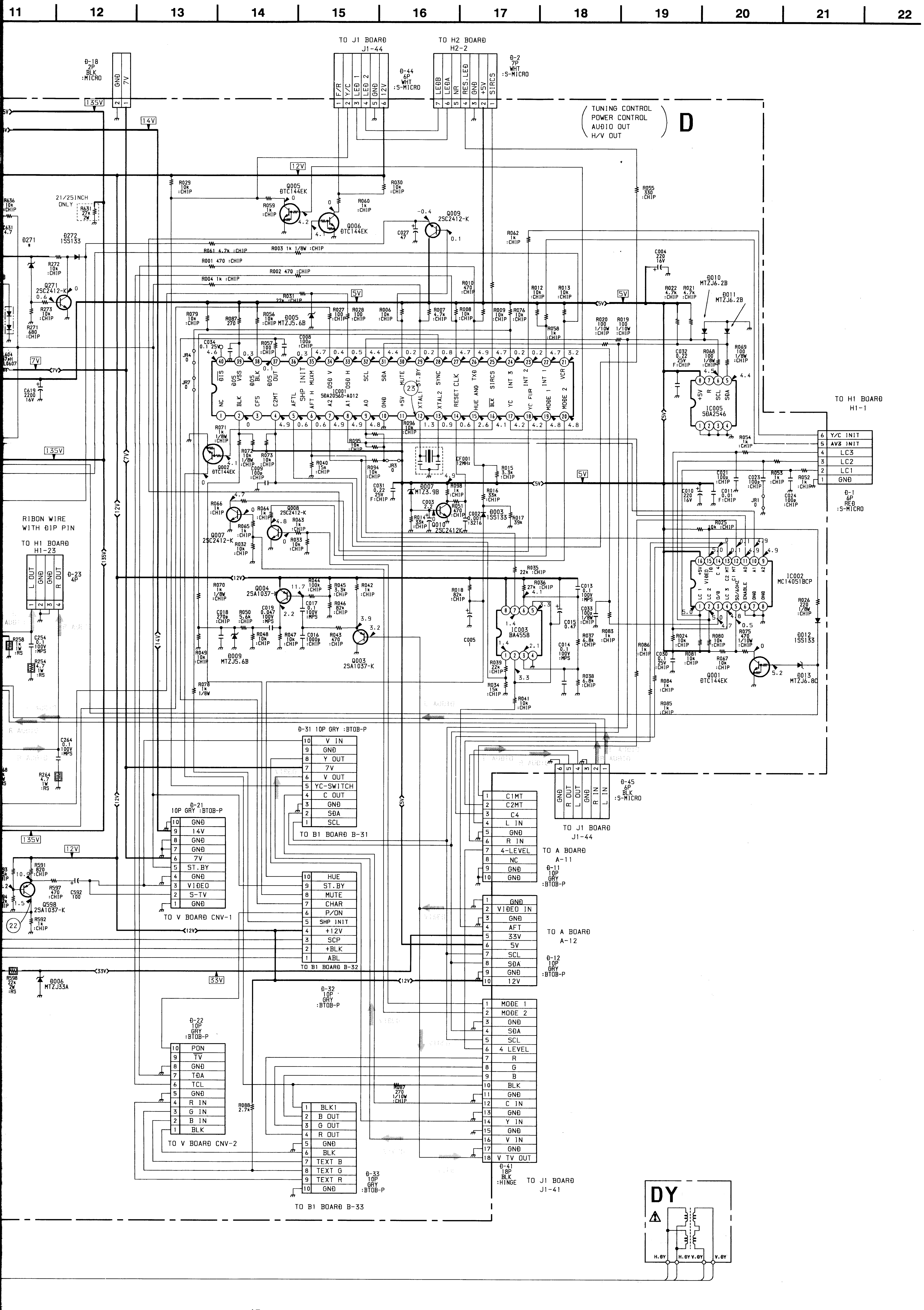
IC001	SDA20560-A012	TUNING CTL
IC002	MC14051BCP	ON SCREEN DISPLAY
IC003	BA4558	AFT COMPARATOR
IC005	SDA2546	MY MEMORY
IC251	TDA2050	AUDIO OUT (L)
IC261	TDA2050	AUDIO OUT (R)
IC501	TEA2028B	DEFLECTION PROCESSOR
IC502	TDA8170	V OUT
IC601	TEA2260	PRIMARY SMRS CTL
IC604	TEA7605	+5V REG
IC608	MC7812CT	+12V REG
Q001	DTC144EK	50/60Hz SW
Q002	DTC144EK	BLK SW
Q003	2SA1037K	SYNC SEPARATOR
Q004	2SA1037K	SYNC SEPARATOR
Q005	DTC144EK	Y/C SW
Q006	DTC144EK	FRONT/REAR SW
Q007	2SC2412K	MODE 2 SWITCH
Q008	2SC2412K	MODE 1 SWITCH
Q009	2SC2412K	MUTE SW
Q010	2SC2412K	RESET
Q251	2SC2412K	AUDIO MUTE
Q261	2SC2412K	AUDIO MUTE
Q271	2SC2412K	VOLTAGE DETECT
Q502	2SA1037K	CONSTANT CURRENT SOURCE
Q505	2SD774	V CENT
Q506	2SB734	V CENT
Q507	2SA1037K	CANAL +BLK
Q598	2SA1037K	VIDEO AMP
Q601	2SB1357T114EF	STBY SW
Q602	2SD1548	REG OUT
Q603	2SB1357T114EF	STBY SW
Q604	2SA1037K	FAST ON/OFF
Q605	2SC2412K	STBY SW
Q606	2SC2412K	STBY SW
Q607	2SD2096-EF	+12V REG
Q608	2SC2412K	STBY SW
Q609	2SD789-3	STBY SW
Q801	2SC2412K	ABL AMP
Q804	2SD1941	H OUT
Q805	2SC2688	H DRIVER

D001	MTZJ6.8C	PROTECT
D002	MTZJ6.8C	PROTECT
D003	1SS133	HUE CTL
D005	MTZJ5.6B	PROTECT
D006	MTZJ33A	VC VOLTAGE REGULATION
D007	MTZJ3.9B	PROTECT RESET
D009	MTZJ5.6B	CLIPPING SYNC LEVEL
D010	MTZJ6.2B	PROTECT
D011	MTZJ6.2B	PROTECT
D012	1SS133	PROTECT
D013	MTZJ6.8C	PROTECT
D271	RD12ES-B2	VOLTAGE DETECT (21 INCH ONLY)
D271	MTZJ13B	VOLTAGE DETECT (25/29 INCH ONLY)
D272	1SS133	DECOUPING MUTE AUDIO
D501	1SS133	SOFT START
D504	GP08DPKG23	V PULSE OUT
D506	DA204K	CURRENT REG (21/25 INCH ONLY)
D508	1SS133	CANAL +BLK LEVEL
D509	1SS133T-77	V LIN (25/29 INCH ONLY)
D511	GP08DPKG23	PROTECT
D512	GP08DPKG23	PROTECT
D513	MTZJ4.7B	PROTECT
D514	1SS133T-77	PROTECT (29 INCH ONLY)
D515	1SS133T-77	PROTECT (29 INCH ONLY)
D601	D4SB60L-F	AC RECT
D602	RGP10GPKG23	REF RECT
D603	GP08DPKG23	SMPS DRIVE 1
D604	GP08DPKG23	SMPS DRIVE 2
D605	GP08DPKG23	SMPS DRIVE 3
D606	RGP10GPKG23	+12V RECT
D607	RGP10GPKG23	REF RECT
D608	ERC25-06S	PLUSE CLIPPER
D609	MTZJ33A	FAST ON/OFF
D610	CTU-12S	+14V RECT
D611	ERD29-08J	+135V RECT
D612	CTU-12S	+7V RECT
D613	RGP15J-6040G23	AF V RECT-1
D614	RGP15J-6040G23	AF V RECT-2
D616	MTZJ6.2B	+12V REG
D617	1SS133	PROTECT
D618	MTZJ5.6B	+12V REF
D619	MTZJ33A	FAST ON/OFF-2
D620	DA204K	+12V REF
D621	MTZJ33A	FAST ON/OFF-3
D622	1SS133	PROTECT
D623	1SS133	DECOUPING STBY
D624	1SS133	DECOUPING DTBY
D630	MTZJ15A	+12V RECT
D801	RGP10GPKG23	+27V RECT
D802	RGP10GPKG23	+200V RECT
D803	RGP02-17PKG23	G2 RECT
D804	GP08DPKG23	H CENTER-1
D805	GP08DPKG23	H CENTER-2
D806	ERC06-15S	H DAMPER-1
D807	ERC06-15S	H DAMPER-2 (25/29 INCH ONLY)
D808	ERD28-08S	PIN DAMPER (21 INCH ONLY)
D808	ERD29-08S	PIN DAMPER (25/29 INCH ONLY)

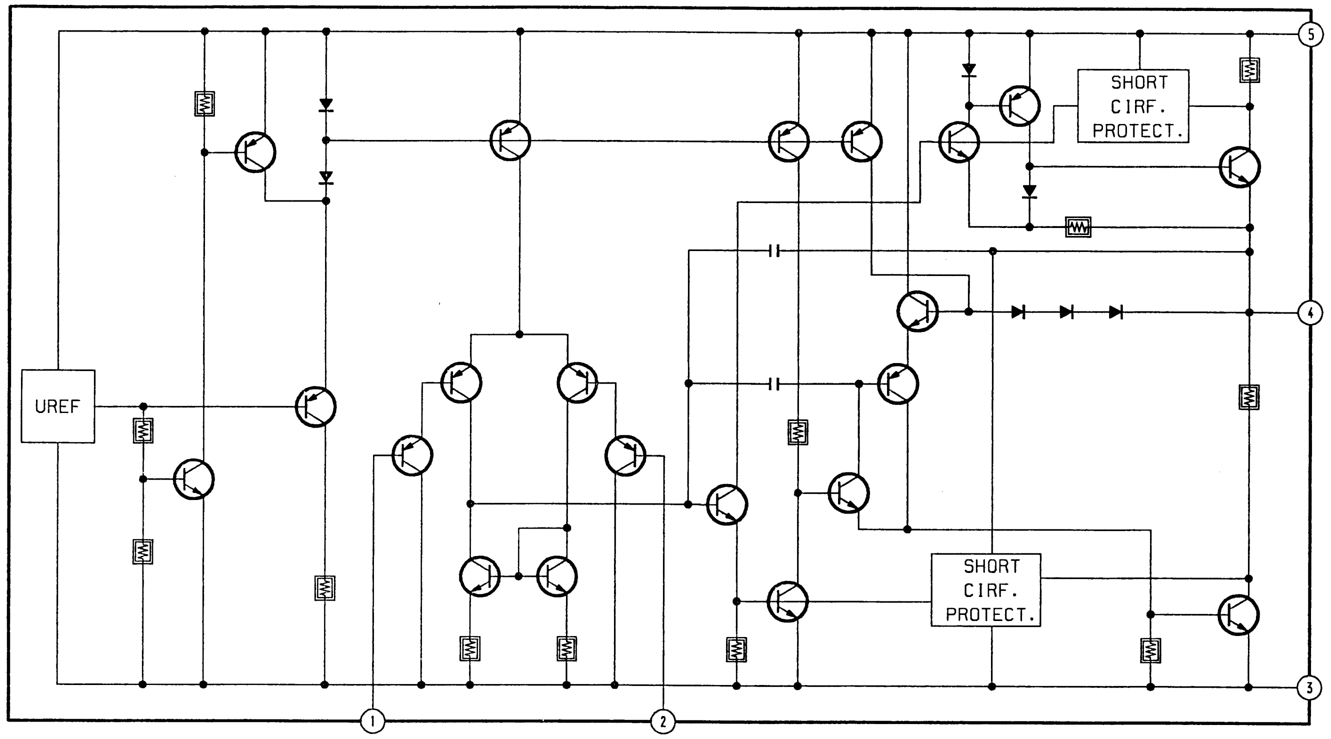
— PICTURE TUBE * MARK —

	KV-A2121D	KV-A2521D	KV-A2921D
V901	A51JXH61X	A59JWC61X	A68JYL61X


1
2
3
4
5
6
7
8
9
10
11
12
DGC
D-66 2P WHT :MINI
D-65 3P WHT :MINI
AC IN
NC
NC
AC IN
D-62 3P WHT :VH
TO F BOARD F-62
LF1601
LF1602
LF1603
D601 D4SB60L-F
THP601
LIVE COLD
T601 S.R.T
IC608 MC7812CT
IC601 TEA2260
D604 2SA1037-K
Q602 2SD1548
ST-BY +B
25/29 INCH ONLY
T602 TPT
Q608 2SC2412-K
Q603 2SB1357T114EF
Q609 2SD789-3
Q606 2SC2412-K
Q607 2SD2096
Q601 2SB1357T114EF
Q605 2SC2412-K
IC604 TEA7605
D610 CTU-12S
D612 CTU-12S
D613 RGP15J
D614 RGP15J
21/25INCH ONLY
Q271 2SC2412-K
D-18 2P BLK :MICRO
135V
12V
7V
5V
14V
IC501 TEA2028B
IC502 TDA8170
H PHASE
D-51 18F BLK :HINGE-P
TO J1 BOARD J1-51
GND
P OUT
27V
VANG
V PAR
V SAW
V CENT
V SIZE
GND
H PLS
ABL 1
ABL 2
12V
H CENT
GND
GND
Q507 2SA1037-K
RIBON WIRE WITH DIP PIN
TO H1 BOARD H1-23
L OUT
GND
GND
R OUT
D-23 4P
IC251 TDA2050 L
IC261 TDA2050 R
Q251 2SC2412-K
Q261 2SC2412-K
Q505 2SD774
Q506 2SB734-3
29 INCH ONLY
21/25 INCH ONLY
21 INCH ONLY
+B ADJ
RV501
Q502 2SA1037-K
27V
29 INCH ONLY
TO VM BOARD VM-88
D-88
H2
NC
H1
RIBON WIRE WITH DIP PIN
TO C BOARD C-81
D-81 3P :MICRO
HV
FV
21/25 INCH ONLY
T802 FBT
D801 RGP10G
Q801 2SC2412-K
D802 RGP10G
H CENT
D805 GP08D
D804 GP08D
D-801A
D-801 3P WHT :MINI
VIDEO
ABL
200V
Q598 2SA1037-K
D006 MTZJ33A
33V
TO C BOARD PICTURE TUBE SOCKET
KG KB G2
V901
PICTURE TUBE
CV KR G1 G4 HV
TO C BOARD C-71 & A BOARD A-15
T801 H.D.T
Q805 2SC2688-L
Q804 2SD1941-06
D806 ERC06-15S
D807 ERC06-15S
D803 RGP02-17
25/29 INCH ONLY
D-83 2P WHT :MINI
D-82 3P WHT :MINI
G2
200V
GND
TO C BOARD C-82
D-84 6P WHT :MINI
H+
H+
H-
H-
V-
V+

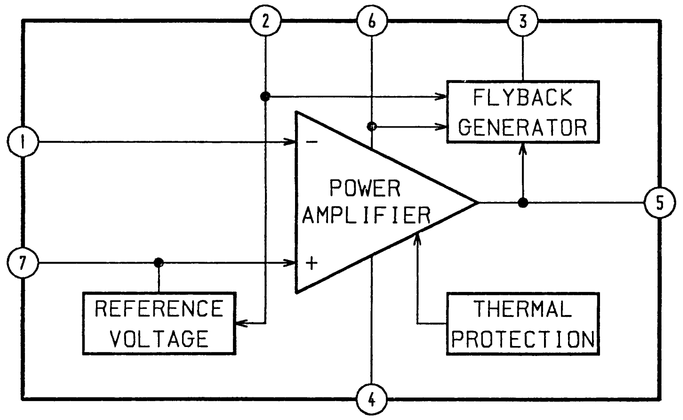

11
12
13
14
15
16
17
18
19
20
21
22
TUNING CONTROL
POWER CONTROL
AUDIO OUT
H/V OUT
D
TO J1 BOARD J1-44
TO H2 BOARD H2-2
D-18 2P BLK :MICRO
GND
7V
D-44 6P WHT :S-MICRO
F/R
Y/C
LED 1
LED 2
GND
12V
LEDB
LEDA
NR
RES.LED
GND
+5V
SIRCS
D-2 7P WHT :S-MICRO
135V
14V
12V
5V
7V
33V
21/25INCH ONLY
Q005 DTC144EK
Q006 DTC144EK
Q009 2SC2412-K
Q271 2SC2412-K
D271
D272 1SS133
D005 MTZJ5.6B
IC001 SDA20560-A012
BIS
DDS VSS
DDS BLK
DDS OUT
SHP INIT
MUXM
OSD V
OSD H
SCL
SDA
MUTE
ST.BY
SYNC
RESET CLK
TXD
SIRCS
INT 3
INT 2
INT 1
VCR
NC
BLK
CFS
C2MT
AFTL
AFT H
A2
A1
A0
GND
+5V
XTAL1
XTAL2
HUE ANG
BLK
YC
YC FIR
MODE 1
MODE 2
IC005 SDA2546
D010 MTZJ6.2B
D011 MTZJ6.2B
TO H1 BOARD H1-1
Y/C INIT
AV3 INIT
LC3
LC2
LC1
GND
D-1 6P RED :S-MICRO
Q002 DTC144EK
Q007 2SC2412-K
Q008 2SC2412-K
D007 MTZ3.9B
Q010 2SC2412K
CF001 12MHz
D003 1SS133
RIBON WIRE WITH DIP PIN
TO H1 BOARD H1-23
L OUT
GND
GND
R OUT
D-23 4P
IC002 MC14051BCP
IC003 BA4558
Q004 2SA1037-K
Q003 2SA1037-K
D009 MTZJ5.6B
D012 1SS133
Q001 DTC144EK
D013 MTZJ6.8C
D-31 10P GRY :BTOB-P
V IN
GND
Y OUT
7V
V OUT
YC-SWITCH
C OUT
GND
SDA
SCL
TO B1 BOARD B-31
D-45 6P BLK :S-MICRO
GND
R OUT
L OUT
GND
R IN
L IN
TO J1 BOARD J1-44
D-21 10P GRY :BTOB-P
GND
14V
GND
GND
7V
ST.BY
GND
VIDEO
S-TV
GND
TO V BOARD CNV-1
C1MT
C2MT
C4
L IN
GND
R IN
4-LEVEL
NC
GND
GND
TO A BOARD A-11
D-11 10P GRY :BTOB-P
Q598 2SA1037-K
HUE
ST.BY
MUTE
CHAR
P/ON
SHP INIT
+12V
SCP
+BLK
ABL
TO B1 BOARD B-32
GND
VIDEO IN
GND
AFT
33V
5V
SCL
SDA
GND
12V
TO A BOARD A-12
D-12 10P GRY :BTOB-P
D006 MTZJ33A
D-32 10P GRY :BTOB-P
D-22 10P GRY :BTOB-P
PON
TV
GND
TDA
TCL
GND
R IN
G IN
B IN
BLK
TO V BOARD CNV-2
BLK1
B OUT
G OUT
R OUT
GND
BLK
TEXT B
TEXT G
TEXT R
GND
D-33 10P GRY :BTOB-P
TO B1 BOARD B-33
MODE 1
MODE 2
GND
SDA
SCL
4 LEVEL
R
G
B
BLK
GND
C IN
GND
Y IN
GND
V IN
GND
V TV OUT
D-41 18P BLK :HINGE
TO J1 BOARD J1-41
DY
H.DY
H.DY
V.DY
V.DY
(22)
(23)

D BOARD IC251/261 TDA2050

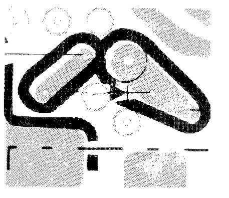


UREF
SHORT CIRF. PROTECT.
SHORT CIRF. PROTECT.
1
2
3
4
5

D BOARD IC502 TDA8170

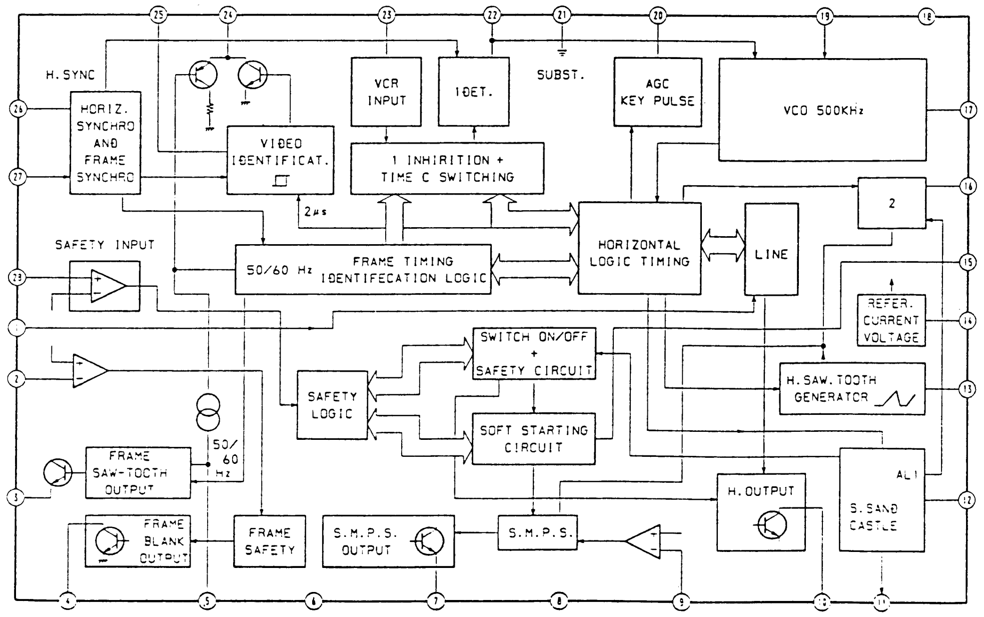


FLYBACK GENERATOR
POWER AMPLIFIER
REFERENCE VOLTAGE
THERMAL PROTECTION
−
+
1
2
3
4
5
6
7



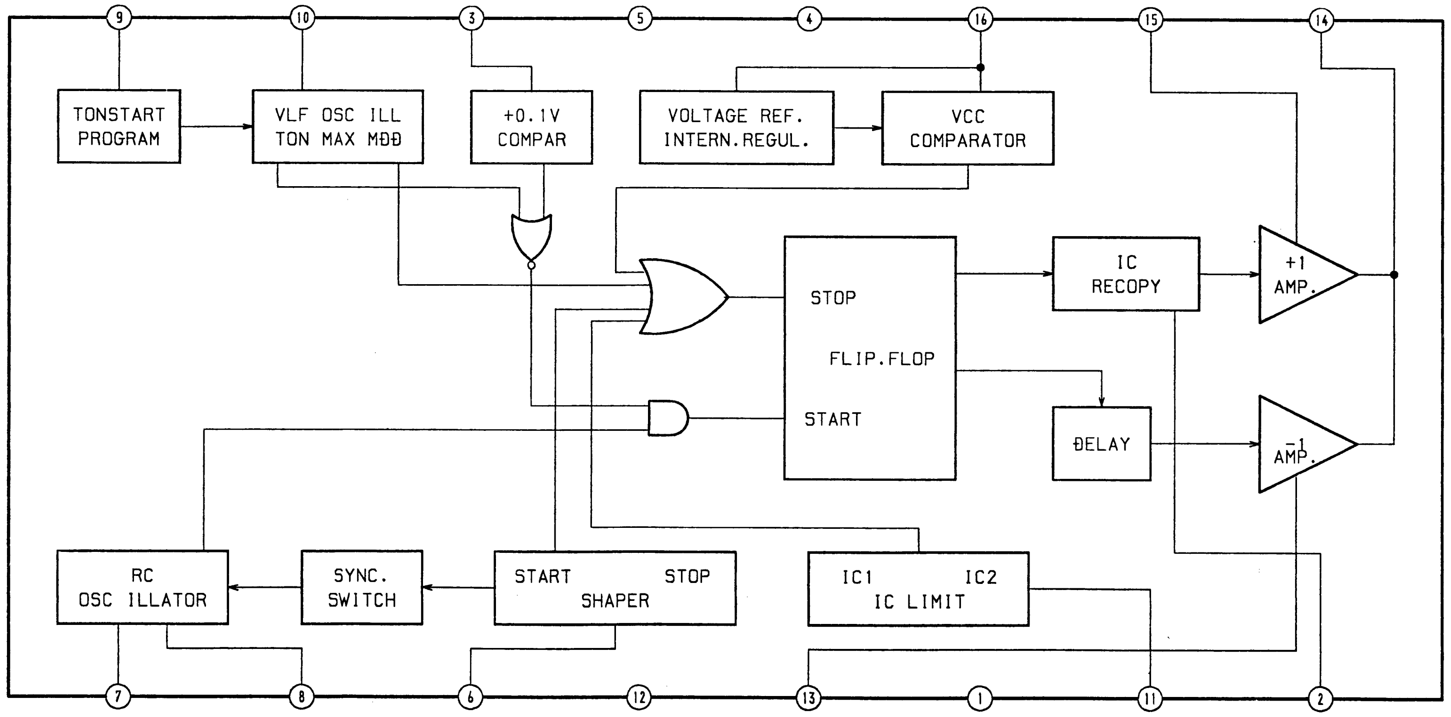
NOTE:
The circuit indicated as left contains high voltage of over 600 Vp-p. Care must be paid to prevent an electric shock in inspection or repairing.

D BOARD IC501 TEA2028B



H. SYNC
HORIZ. SYNCHRO AND FRAME SYNCHRO
VIDEO IDENTIFICAT.
VCR INPUT
IDET.
1 INHIRITION + TIME C SWITCHING
SUBST.
AGC KEY PULSE
VCO 500KHz
2
2μs
SAFETY INPUT
50/60 Hz FRAME TIMING IDENTIFECATION LOGIC
HORIZONTAL LOGIC TIMING
LINE
REFER. CURRENT VOLTAGE
SWITCH ON/OFF + SAFETY CIRCUIT
SAFETY LOGIC
SOFT STARTING CIRCUIT
H. SAW. TOOTH GENERATOR
50/60 Hz
FRAME SAW-TOOTH OUTPUT
H. OUTPUT
AL1
S. SAND CASTLE
FRAME BLANK OUTPUT
FRAME SAFETY
S.M.P.S. OUTPUT
S.M.P.S.
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
28
27
26

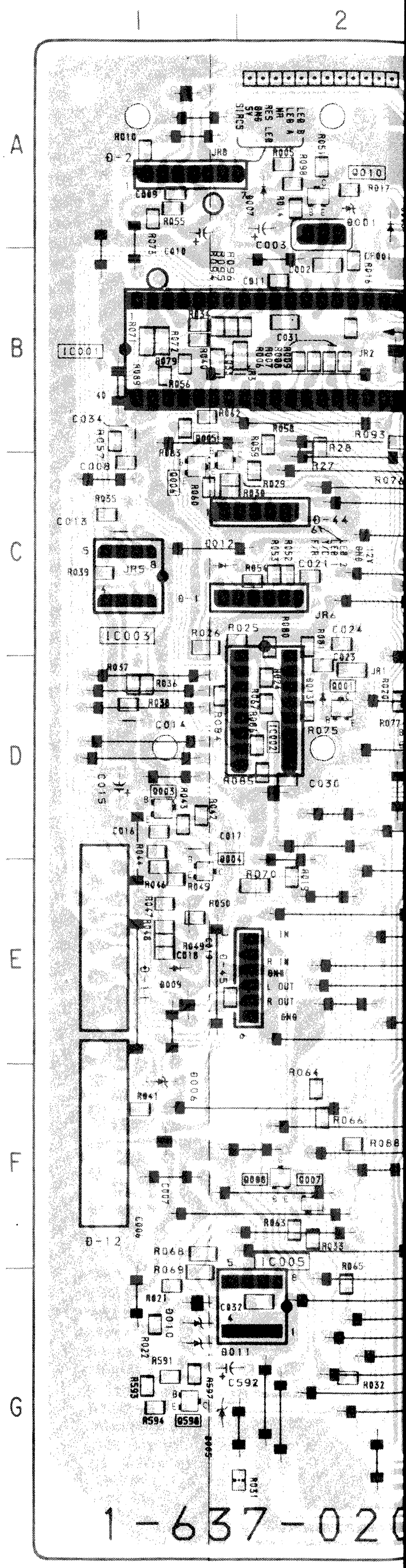
D BOARD IC601 TEA2260



TONSTART PROGRAM
VLF OSC ILL TON MAX MDD
+0.1V COMPAR
VOLTAGE REF. INTERN. REGUL.
VCC COMPARATOR
STOP
FLIP. FLOP
START
IC RECOPY
DELAY
+1 AMP.
−1 AMP.
RC OSC ILLATOR
SYNC. SWITCH
START STOP SHAPER
IC1 IC2 IC LIMIT
9
10
3
5
4
16
15
14
7
8
6
12
13
1
11
2

D TUNING CONTROL, POWER CONTR
AUDIO OUT, H/V OUT

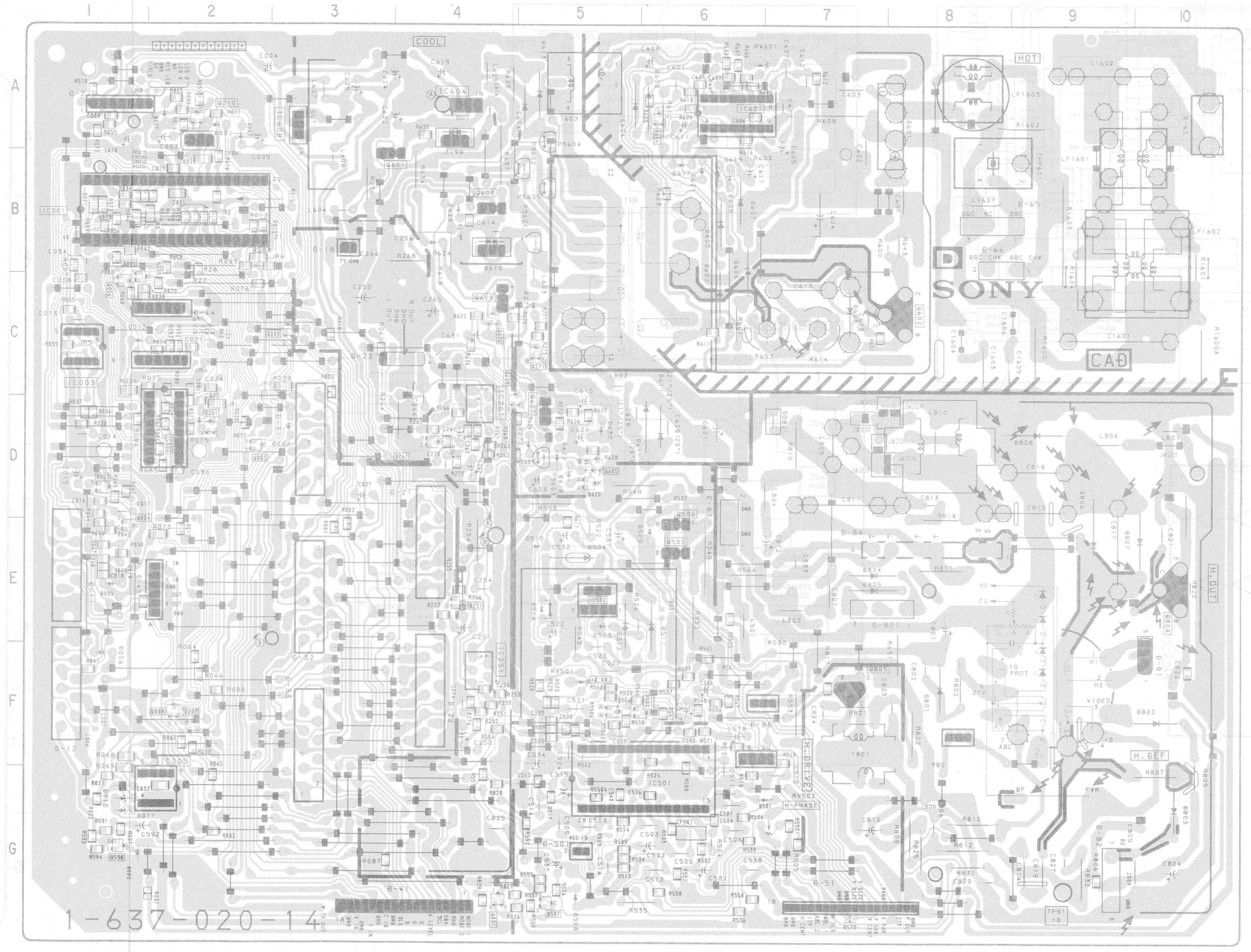
— D Board —



1
2
A
B
C
D
E
F
G
1-637-02

D [TUNING CONTROL, POWER CONTROL
AUDIO OUT, H/V OUT]

— D Board —



— D Board —

IC	
IC001	B-2
IC002	D-2
IC003	C-1
IC005	G-2
IC251	F-4
IC261	D-4
IC501	G-6
IC502	E-5
IC601	A-6
IC604	A-4
IC608	A-3

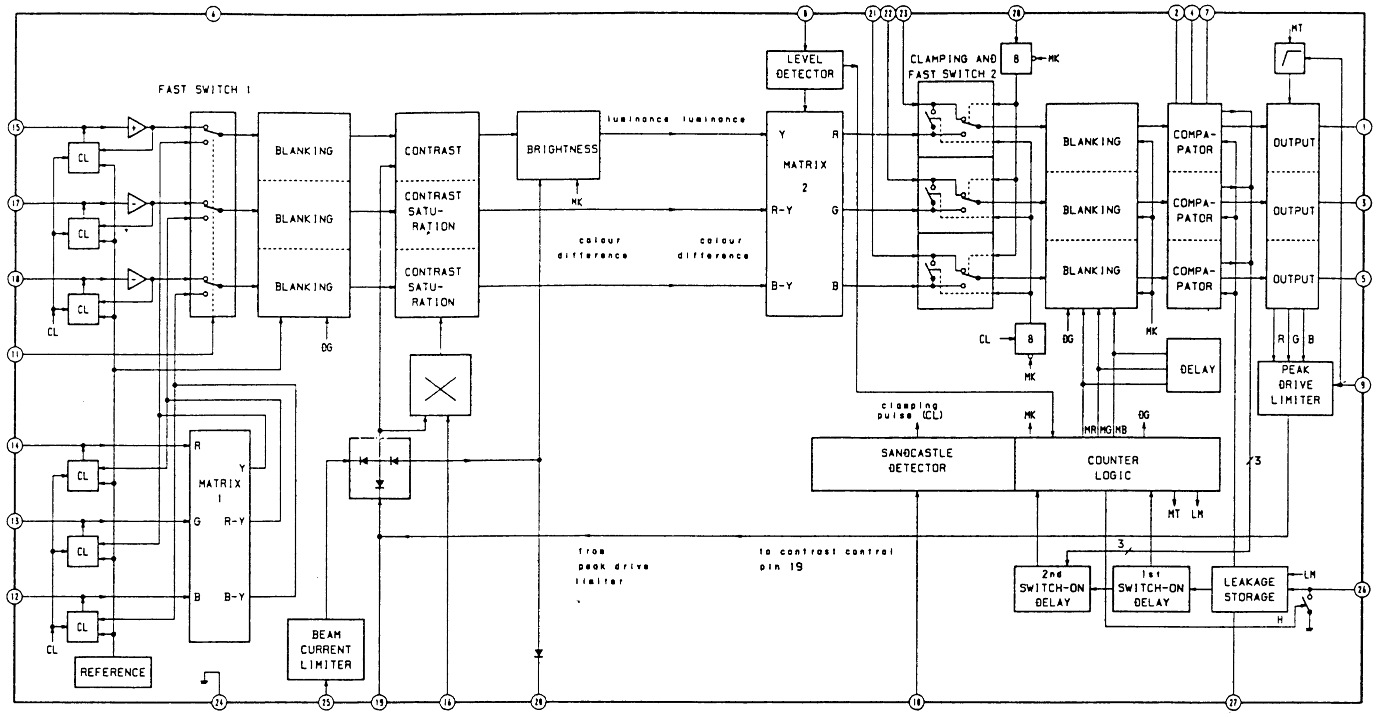
TRANSISTOR	
Q001	D-2
Q002	D-2
Q003	D-1
Q004	E-1
Q005	C-1
Q006	C-1
Q007	F-2
Q008	F-2
Q009	C-3
Q010	A-2
Q251	E-4
Q261	D-4
Q271	C-5
Q502	F-2
Q505	E-6
Q506	D-6
Q507	G-5
Q598	G-1
Q601	B-3
Q602	C-8
Q603	B-4
Q604	A-6
Q605	D-5
Q606	C-4
Q607	D-5
Q608	D-4
Q609	C-4
Q801	G-4
Q804	E-10
Q805	F-7

DIODE	
D001	A-2
D002	D-3
D003	A-2
D005	G-1
D006	F-1
D007	A-2
D009	E-1
D010	G-1
D011	G-1
D012	C-1
D013	D-2
D271	C-5
D272	D-5
D501	G-7
D504	E-5
D506	F-5
D508	G-5
D509	E-6
D511	E-6
D512	E-5
D513	E-5
D514	E-5
D515	E-5
D601	A-8
D602	C-6
D603	A-6
D604	A-5
D605	B-6
D606	B-6
D607	B-6
D608	C-7
D609	B-6
D610	B-4
D611	D-6
D612	A-4
D613	A-5
D614	A-5
D616	D-5
D617	B-6
D618	D-5
D619	B-6
D620	D-5
D621	B-6
D622	D-5
D623	B-4
D624	B-4
D630	D-5
D801	F-8
D802	F-10
D803	G-10
D804	E-7
D805	E-7
D806	E-9
D807	E-10
D808	D-9

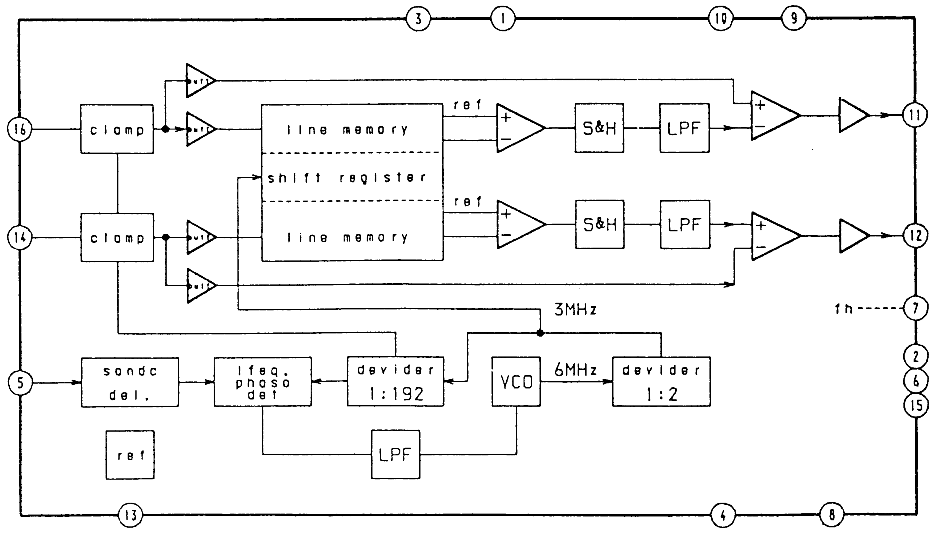
VARIABLE RESISTOR	
RV501	F-5
RV502	G-7
RV601	A-6

TP	
TP91	G-9

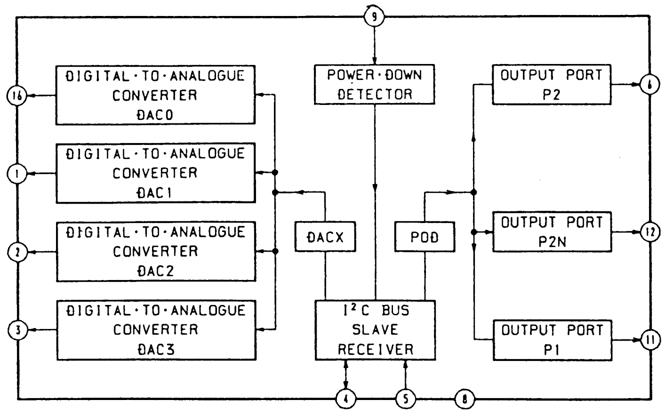
B1 BOARD IC301 TDA4580-V7


FAST SWITCH 1
CL
BLANKING
BLANKING
BLANKING
DG
CONTRAST
CONTRAST SATU-RATION
CONTRAST SATU-RATION
BRIGHTNESS
MK
luminance
luminance
colour difference
colour difference
MATRIX 1
R
G
B
Y
R-Y
B-Y
REFERENCE
BEAM CURRENT LIMITER
from peak drive limiter
to contrast control pin 19
LEVEL DETECTOR
MATRIX 2
Y
R-Y
B-Y
R
G
B
CLAMPING AND FAST SWITCH 2
8
MK
CL
BLANKING
BLANKING
BLANKING
COMPA-PATOR
COMPA-PATOR
COMPA-PATOR
OUTPUT
OUTPUT
OUTPUT
MT
R G B
PEAK DRIVE LIMITER
DELAY
clamping pulse (CL)
MR MG MB
SANDCASTLE DETECTOR
COUNTER LOGIC
MT LM
3
2nd SWITCH-ON DELAY
1st SWITCH-ON DELAY
LEAKAGE STORAGE
LM
H
6
8
21 22 23
28
2 4 7
15
17
18
11
14
13
12
1
3
5
9
26
24
25
19
16
20
10
27

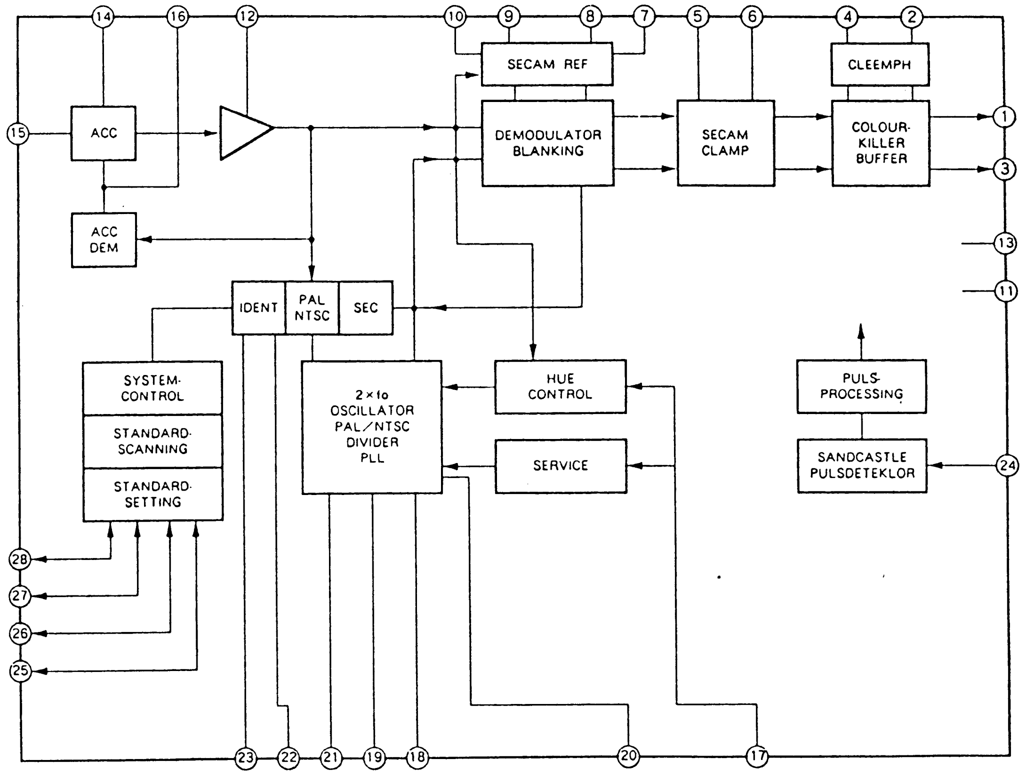
B1 BOARD IC303 TDA4660T


3
1
10
9
16
14
clamp
clamp
line memory
shift register
line memory
ref
ref
+
−
S&H
LPF
S&H
LPF
11
12
3MHz
fh
7
2
6
15
5
sandc del.
1 freq. phase det
devider 1:192
VCO
6MHz
devider 1:2
LPF
ref
13
4
8

B1 BOARD IC302 TDA8442-N3


9
DIGITAL-TO-ANALOGUE CONVERTER DAC0
DIGITAL-TO-ANALOGUE CONVERTER DAC1
DIGITAL-TO-ANALOGUE CONVERTER DAC2
DIGITAL-TO-ANALOGUE CONVERTER DAC3
POWER-DOWN DETECTOR
DACX
POD
I²C BUS SLAVE RECEIVER
OUTPUT PORT P2
OUTPUT PORT P2N
OUTPUT PORT P1
16
1
2
3
6
12
11
4
5
8

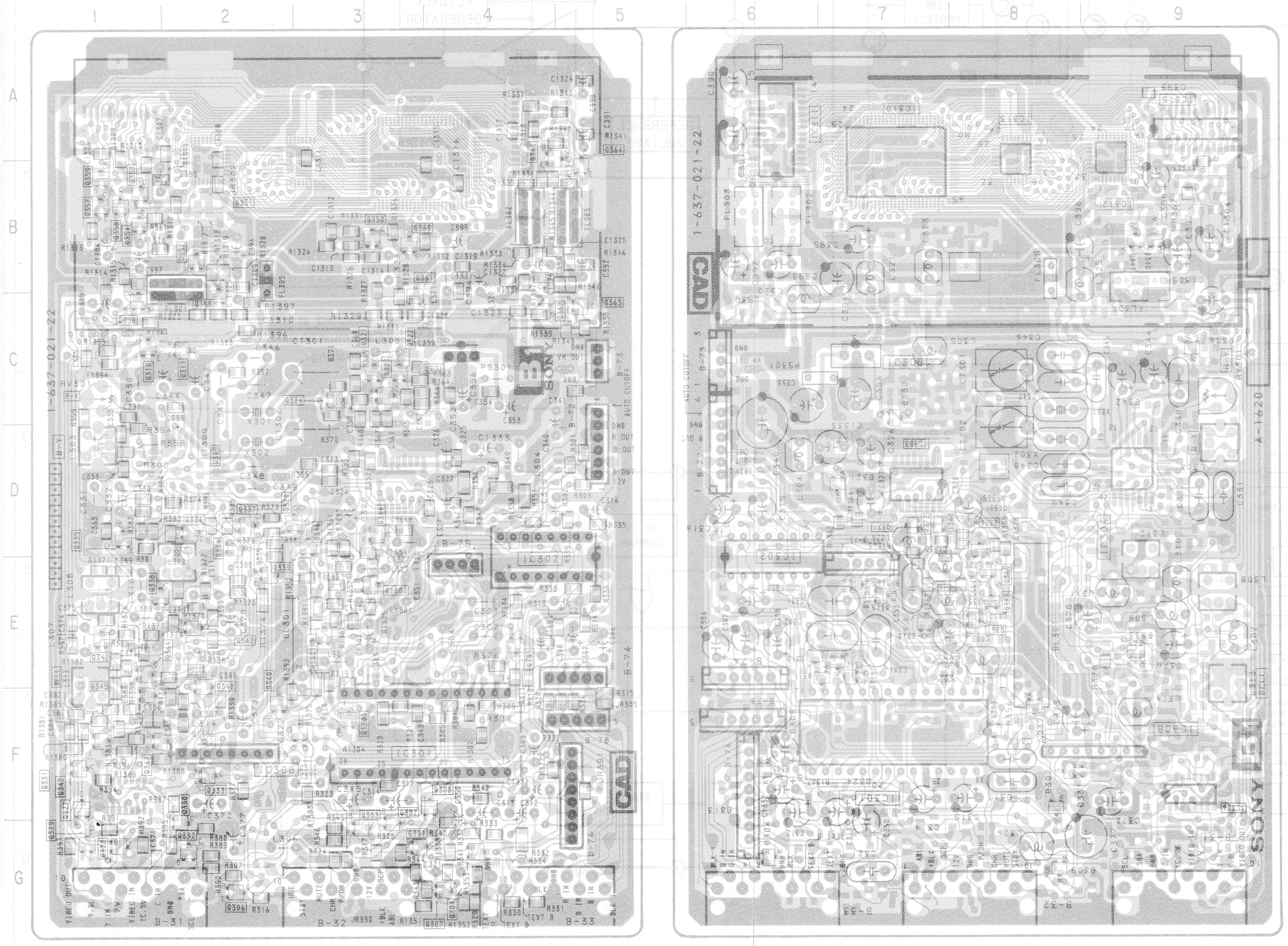
B1 BOARD IC304 TDA4650WP


14
16
12
10
9
8
7
5
6
4
2
15
ACC
ACC DEM
SECAM REF
DEMODULATOR BLANKING
SECAM CLAMP
CLEEMPH
COLOUR-KILLER BUFFER
1
3
13
11
IDENT
PAL NTSC
SEC
SYSTEM-CONTROL
STANDARD-SCANNING
STANDARD-SETTING
2×fo OSCILLATOR PAL/NTSC DIVIDER PLL
HUE CONTROL
SERVICE
PULS-PROCESSING
SANDCASTLE PULSDETEKLOR
24
28
27
26
25
23
22
21
19
18
20
17

B1 VIDEO PROCESSOR, COLOR PROCESSOR
Y/C SW, D/A CONVERTER, MEMORY
A/D CONVERTER

— **B1 Board** —

- ▨ : pattern from the side which enables seeing.
- ▨ : pattern of the rear side.

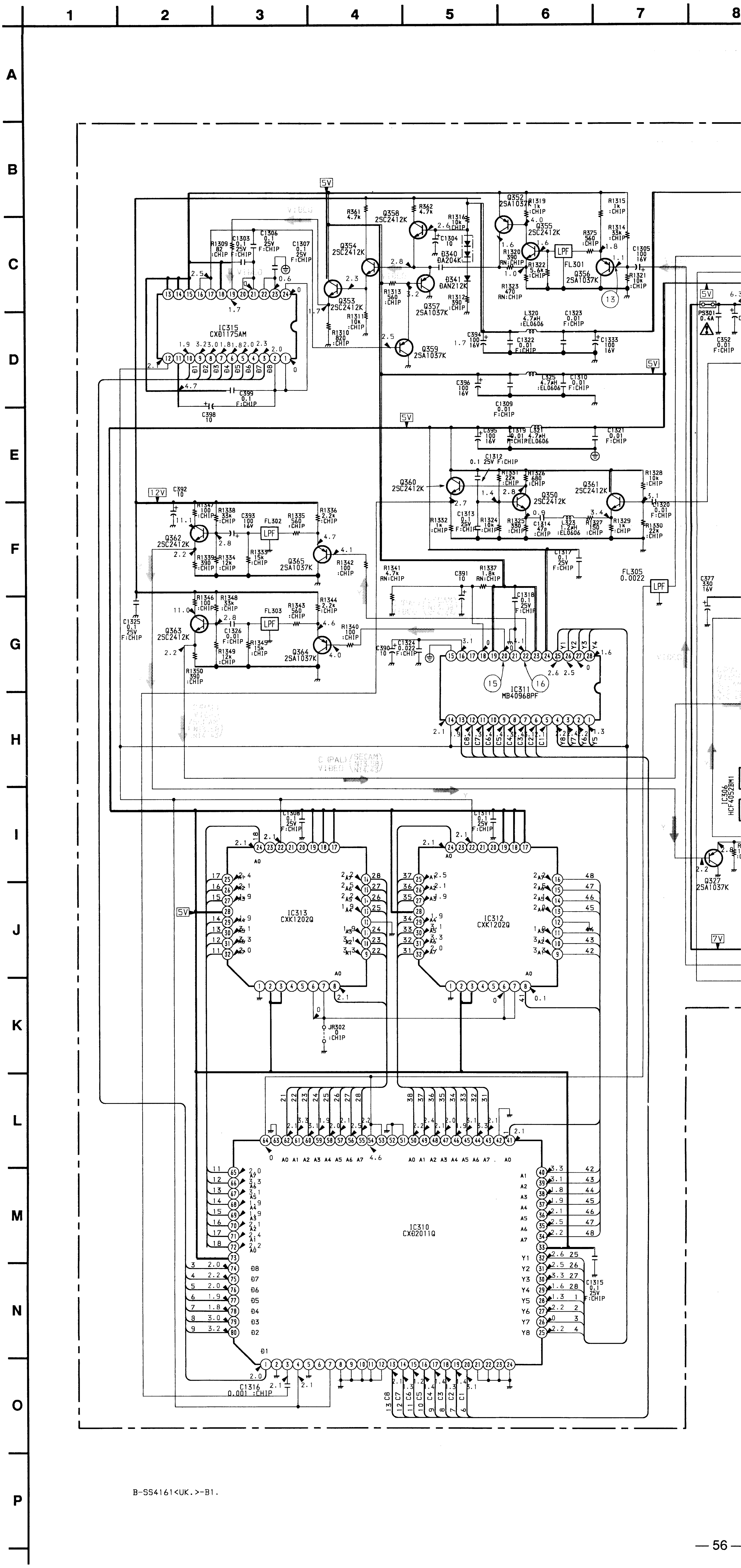


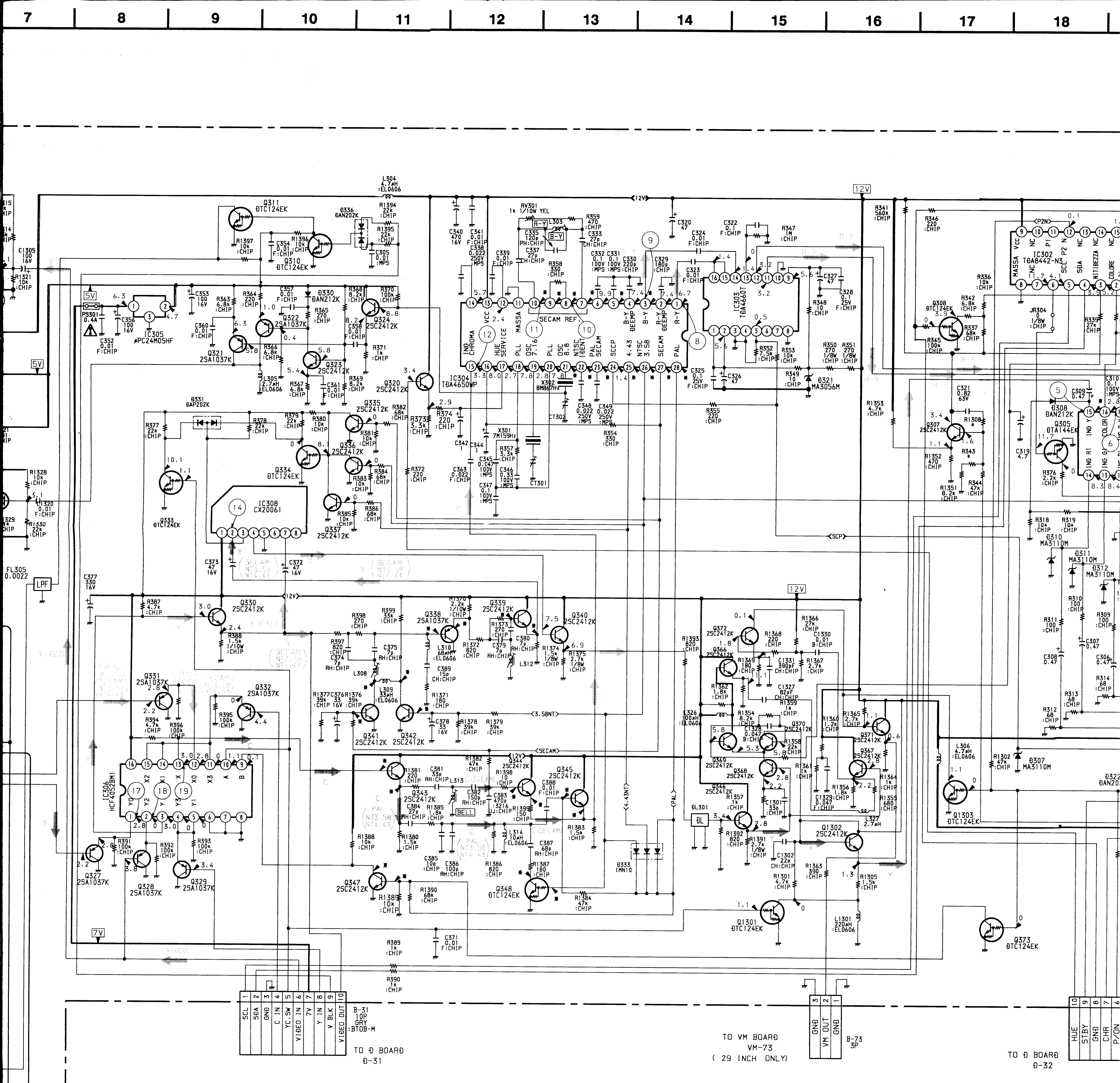
— **B1 Board** —

IC	
IC301	E – 6
IC302	D – 5
IC303	C – 6
IC304	C – 7
IC305	B – 6
IC306	E – 8
IC308	E – 7
IC310	A – 6
IC311	A – 5
IC312	A – 7
IC313	A – 6
IC315	A – 7
TRANSISTOR	
Q301	E – 3
Q302	E – 3
Q303	E – 3
Q304	F – 3
Q305	D – 4
Q306	F – 2
Q307	F – 3
Q308	E – 3
Q310	C – 1
Q311	C – 1
Q320	C – 2
Q321	B – 2
Q322	B – 3
Q323	C – 3
Q324	C – 2
Q327	E – 1
Q328	E – 1
Q329	E – 1
Q330	E – 1
Q331	E – 1
Q332	E – 1
Q333	E – 2
Q334	D – 2
Q335	D – 1
Q336	C – 1
Q337	C – 2
Q338	D – 1
Q339	D – 2
Q340	D – 2
Q341	D – 1
Q342	D – 2
Q343	E – 1
Q344	D – 1
Q345	D – 1
Q346	D – 2
Q347	E – 1
Q348	D – 2
Q350	B – 3
Q352	B – 1
Q353	A – 1
Q354	B – 1
Q355	B – 2
Q356	C – 1
Q357	B – 1
Q358	B – 1
Q359	B – 1
Q360	B – 3
Q361	B – 3
Q362	B – 4
Q363	B – 4
Q364	A – 4
Q365	A – 4
Q366	C – 3
Q367	D – 6
Q368	D – 6
Q369	D – 6
Q370	D – 6
Q371	D – 6
Q372	D – 6
Q373	E – 6
Q1301	D – 2
Q1302	D – 3
Q1303	E – 2
DIODE	
D301	D – 6
D304	E – 5
D305	E – 5
D307	E – 7
D308	E – 6
D309	F – 7
D310	D – 5
D311	D – 5
D312	D – 5
D314	D – 6
D318	D – 6
D319	D – 6
D320	D – 6
D321	C – 6
D322	E – 2
D330	C – 6
D331	E – 7
D333	D – 7
D336	B – 8
D340	B – 7
D341	B – 7
VARIABLE RESISTOR	
RV301	C – 8
TRIMMER	
CT301	C – 6
CT302	C – 6
COIL	
L303	C – 8
L308	D – 8
L312	D – 7
L313	D – 8

— B1 Board —

IC301	TDA4580-V7	VIDEO PROCESSOR
IC302	TDA8442N3	D/A CONVERTER
IC303	TDA4660T	1H DELAY
IC304	TDA4650WP	COLOR PROCESSOR
IC305	μPC24M05HF	REGULATOR
IC306	HCF4052BM	Y/C SW
IC308	CX20061	Y SW
IC310	CXD2011Q-TL	COMB CONTROL
IC311	MB40968PF	D/A CONVERTER
IC312	CXK1202Q-T4	MEMORY
IC313	CXK1202Q-T4	MEMORY
IC315	CXD1175AM-T5	A/D CONVERTER
Q301	2SC2412K	CANAL +BLK
Q302	2SC2412K	ON SCREEN DISPLAY SW
Q303	2SC2412K	FAS PICTURE MUTE SW
Q304	2SC2412K	ON SCREEN DISPLAY SW
Q305	DTA144EK	ANTI PRIORITY SCART
Q306	2SC2412K	STBY SW
Q307	2SC2412K	ABL
Q308	DTC124EK	MUTE
Q310	DTC124EK	SECAM SW
Q311	DTC124EK	SECAM SW
Q320	2SC2412K	HUE BUFFER
Q321	2SA1037K	CLK AMP3
Q322	2SA1037K	CLK AMP2
Q323	2SC2412K	CLK AMP1
Q324	2SC2412K	CLK BUFFER
Q327	2SA1037K	Y OUT
Q328	2SA1037K	VIDEO IN
Q329	2SA1037K	Y IN
Q330	2SC2412K	VIDEO BUFFER
Q331	2SA1037K	C OUT
Q332	2SA1037K	C IN
Q333	DTC124EK	Y/C SW
Q334	DTC124EK	Y SW
Q335	2SC2412K	SECAM SW
Q336	2SC2412K	NTSC (3.58) SW
Q337	2SC2412K	NTSC (4.43) SW
Q338	2SA1037K	Y BUFFER
Q339	2SC2412K	Y BUFFER
Q340	2SC2412K	Y BUFFER
Q341	2SC2412K	SECAM TRAP SW
Q342	2SC2412K	NTSC TRAP SW
Q343	2SC2412K	C OUT
Q344	2SC2412K	SECAM SW
Q345	2SC2412K	PAL/SECAM SW
Q346	2SC2412K	Y IN
Q347	2SC2412K	PAL SW
Q348	DTC124EK	NTSC (3.58) SW
Q350	2SC2412K	CLK AMP
Q352	2SA1037K	VIDEO AMP
Q353	2SC2412K	BUFFER
Q354	2SC2412K	BUFFER
Q355	2SC2412K	VIDEO AMP
Q356	2SA1037K	VIDEO BUFFER
Q357	2SA1037K	CLAMP BIAS
Q358	2SC2412K	VIDEO CLAMP
Q359	2SA1037K	CLAMP BIAS
Q360	2SC2412K	CLK BUFFER
Q361	2SC2412K	CLK AMP
Q362	2SC2412K	Y BUFFER
Q363	2SC2412K	C BUFFER
Q364	2SA1037K	C BUFFER
Q365	2SA1037K	Y BUFFER
Q366	2SC2412K	SHP BUFFER
Q367	2SC2412K	Y BUFFER
Q368	2SC2412K	SHP AMP
Q369	2SC2412K	SHP AMP
Q370	2SC2412K	SHP AMP
Q371	2SC2412K	VM BUFFER
Q372	2SC2412K	VM AMP
Q373	DTC124EK	
Q1301	DTC124EK	Y BUFFER
Q1302	2SC2412K	Y BUFFER
Q1303	DTC124EK	VM MUTE
D301	1MN10	ACO AT ATBY
D304	DAN212K	PROTECT
D305	DAN212K	PROTECT
D307	MA3110M	PROTECT
D308	DAN212K	PROTECT
D309	DAN212K	PROTECT
D310	MA3110M	PROTECT
D311	MA3110M	PROTECT
D312	MA3110M	PROTECT
D314	DA204K	PROTECT
D318	DA204K	PROTECT
D319	DA204K	PROTECT
D320	DA204K	PROTECT
D321	MA3056	REG
D322	DAN202K	PROTECT
D330	DAN212K	BIAS
D331	DAP202K	Y/C SW
D333	1MN10	SYSTEM SW
D336	DAN202K	CORRECT SW
D340	DA204K	VIDEO AMP
D341	DAN212K	VIDEO AMP


1
2
3
4
5
6
7
8
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
5V
12V
7V
IC315
CXD1175AM
IC311
MB40968PF
IC313
CXK1202Q
IC312
CXK1202Q
IC310
CXD2011Q
IC306
HCF4052BM
Q352
2SA1037K
Q353
2SC2412K
Q354
2SC2412K
Q355
2SC2412K
Q356
2SA1037K
Q357
2SA1037K
Q358
2SC2412K
Q359
2SA1037K
Q360
2SC2412K
Q350
2SC2412K
Q361
2SC2412K
Q362
2SC2412K
Q363
2SC2412K
Q364
2SA1037K
Q365
2SA1037K
Q327
2SA1037K
D340
DA204K
D341
DAN212K
FL301
FL302
FL303
FL305
0.0022
LPF
PS301
0.4A
JR302
VIDEO
C (PAL)
SECAM
(4.43)
(3.58)
B-SS4161<UK.>-B1.


7
8
9
10
11
12
13
14
15
16
17
18
IC304 TDA4650WP
IC303 TDA4660T
IC302 TDA8442-N3
IC305 μPC24M05HF
IC306 HCF4052BM1
IC308 CX20061
X301 7M159Hz
X302 8M867Hz
PS301 0.4A
FL305 0.0022
LPF
5V
7V
12V
SECAM REF.
BELL
DL
DL301
B-31 10P GRY BTOB-M
TO Ð BOARD Ð-31
SCL
SDA
GND
C IN
YC.SW
VIDEO IN
7V
Y IN
V BLK
VIDEO OUT
TO VM BOARD VM-73 (29 INCH ONLY)
GND
VM OUT
GND
B-73 3P
TO Ð BOARD Ð-32
HUE
STBY
GND
CHR
P/ON

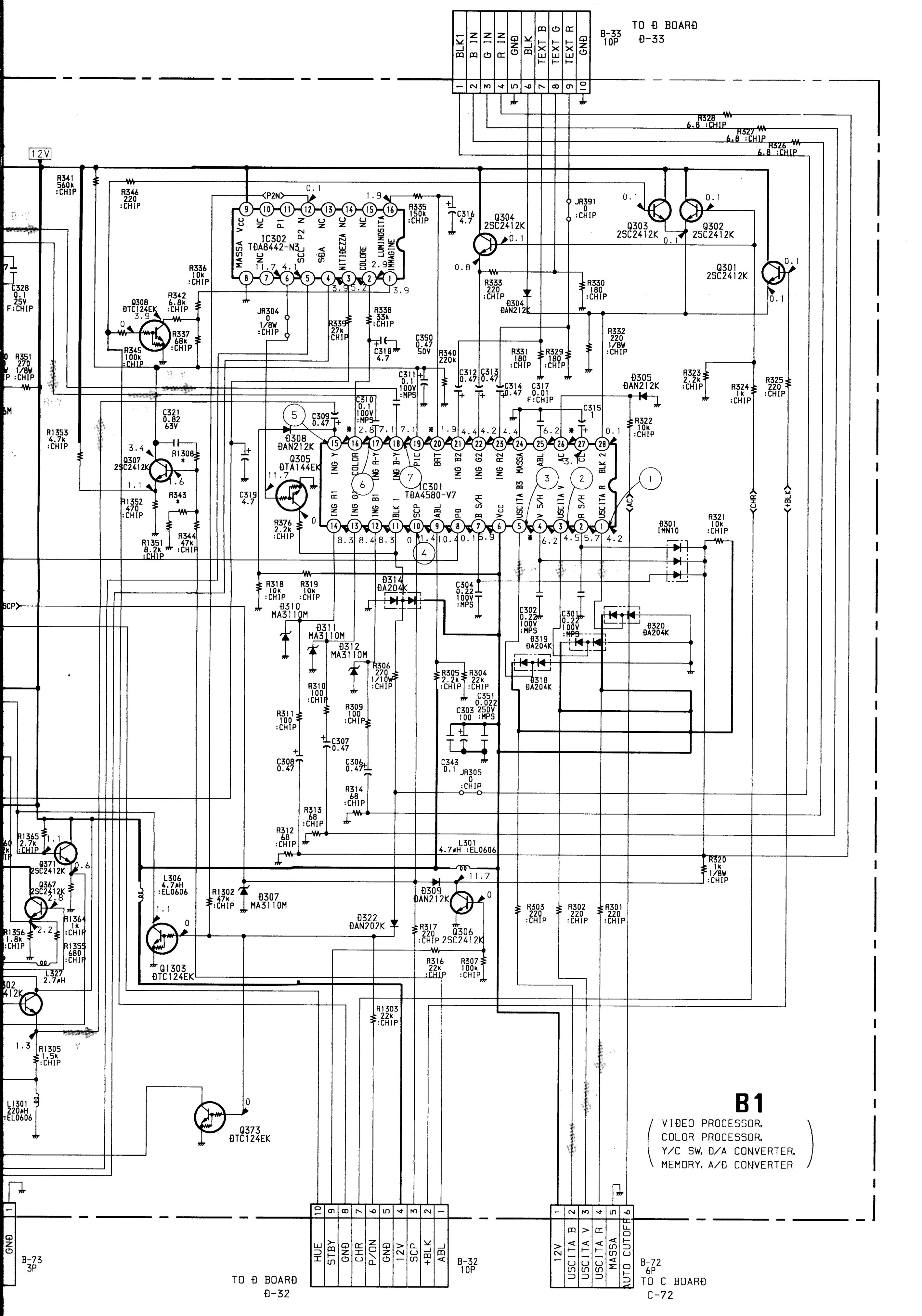
— B1 Board —

As to the voltage

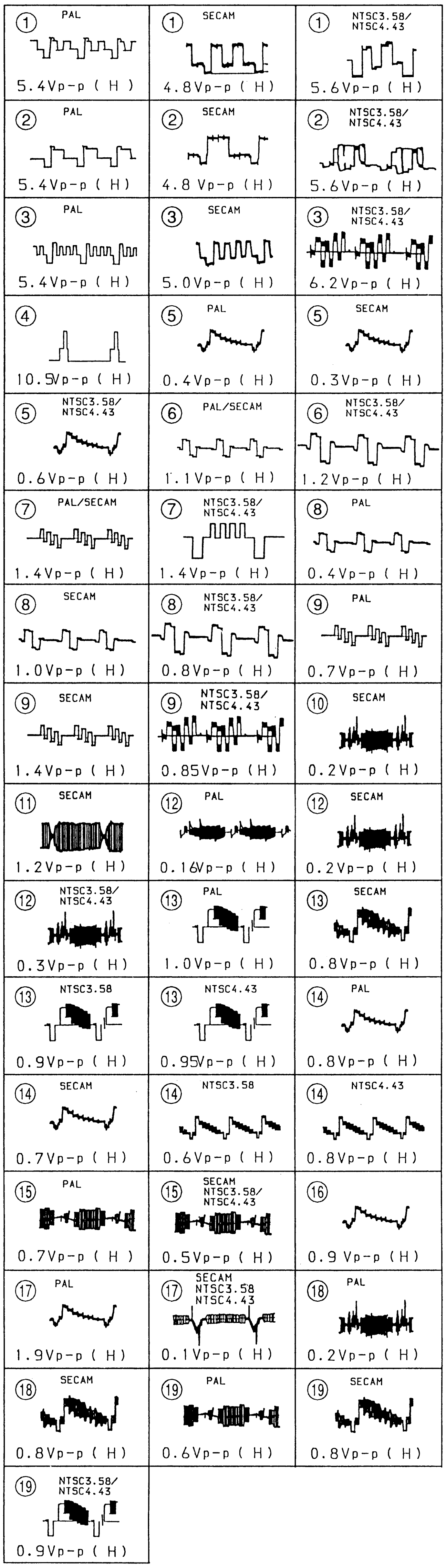
make ※ on the Sche

the another list.

IC·NO	PIN·NO	PAL	SECAM	NT 3.
IC301	⑤	5.1	4.8	
	⑮	7.3	7.0	
	⑲	3.1	3.4	
	㉖	6.6	6.6	
IC304	③	6.8	6.8	
	⑤	9.9	10.1	
	⑦	4.3	3.5	
	⑧	3.4	3.0	
	⑨	3.4	3.0	
	⑩	4.3	3.4	
	㉑	2.3	3.1	
	㉒	5.6	5.6	
	㉓	7.5	7.5	
	㉕	0	1.4	
	㉖	0	0	
	㉗	0	5.9	
	㉘	5.9	0	


B1
VIDEO PROCESSOR,
COLOR PROCESSOR,
Y/C SW, D/A CONVERTER,
MEMORY, A/D CONVERTER
IC301 TDA4580-V7
IC302 TDA8442-N3
BLK1
B IN
G IN
R IN
GND
BLK
TEXT B
TEXT G
TEXT R
GND
B-33 10P
TO D BOARD D-33
HUE
STBY
GND
CHR
P/ON
GND
12V
SCP
+BLK
ABL
B-32 10P
TO D BOARD D-32
12V
USCITA B
USCITA V
USCITA R
MASSA
AUTO CUTOFF
B-72 6P
TO C BOARD C-72
GND
B-73 3P
Q301 2SC2412K
Q302 2SC2412K
Q303 2SC2412K
Q304 2SC2412K
Q305 DTA144EK
Q306 2SC2412K
Q307 2SC2412K
Q308 DTC124EK
Q1303 DTC124EK
Q373 DTC124EK
12V

— B1 Board —



— B1 Board —

As to the voltage value shown by the make ※ on the Schematic Diagram, see the another list.

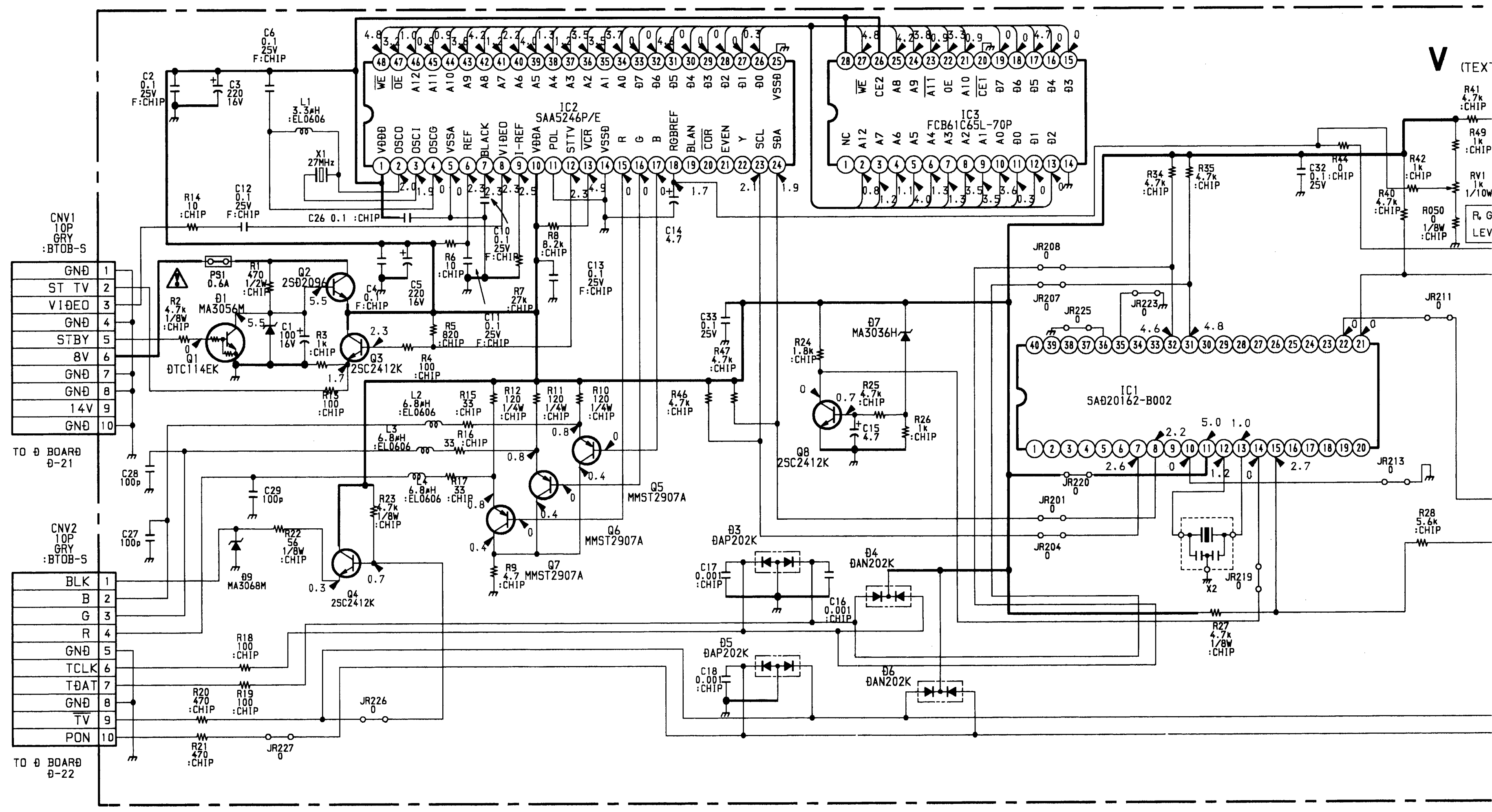
IC·NO	PIN·NO	PAL	SECAM	NTSC 3.38	NTSC 4.43
IC301	⑤	5.1	4.8	4.8	4.8
	⑮	7.3	7.0	7.0	7.0
	⑲	3.1	3.4	3.8	3.4
	㉖	6.6	6.6	6.0	6.3
IC304	③	6.8	6.8	6.9	6.8
	⑤	9.9	10.1	9.9	9.9
	⑦	4.3	3.5	4.6	4.6
	⑧	3.4	3.0	3.4	3.4
	⑨	3.4	3.0	3.4	3.4
	⑩	4.3	3.4	4.6	4.6
	㉑	2.3	3.1	3.1	2.3
	㉒	5.6	5.6	5.6	7.4
	㉓	7.5	7.5	5.7	5.7
	㉕	0	1.4	5.9	5.9
	㉖	0	0	0	0
	㉗	0	5.9	0	0
	㉘	5.9	0	0	0

Q·NO		PAL	SECAM	NTSC 3.38	NTSC 4.43
Q338	B	2.6	3.9	3.9	3.9
	E	3.3	4.6	4.6	4.6
Q339	B	3.2	4.6	4.6	4.6
	E	3.6	3.9	3.9	3.9
Q341	B	0	0.6	0.4	0.1
	C	11.8	0	11.6	11.6
Q342	B	0	0	0.4	0
	C	11.7	0	11.7	11.7
Q343	B	3.2	5.3	5.3	5.3
	E	2.6	4.6	4.7	4.7
Q344	B	0	5.4	1.0	0.1
	E	4.0	4.8	1.5	4.5
Q345	B	4.6	0.1	1.9	5.0
	E	4.0	4.4	1.4	4.4
Q347	B	0.6	0	0	0
	C	0.1	11.9	11.9	11.9
Q348	B	0.1	0.1	1.0	0.1
	C	0.4	0.2	0.2	0.4

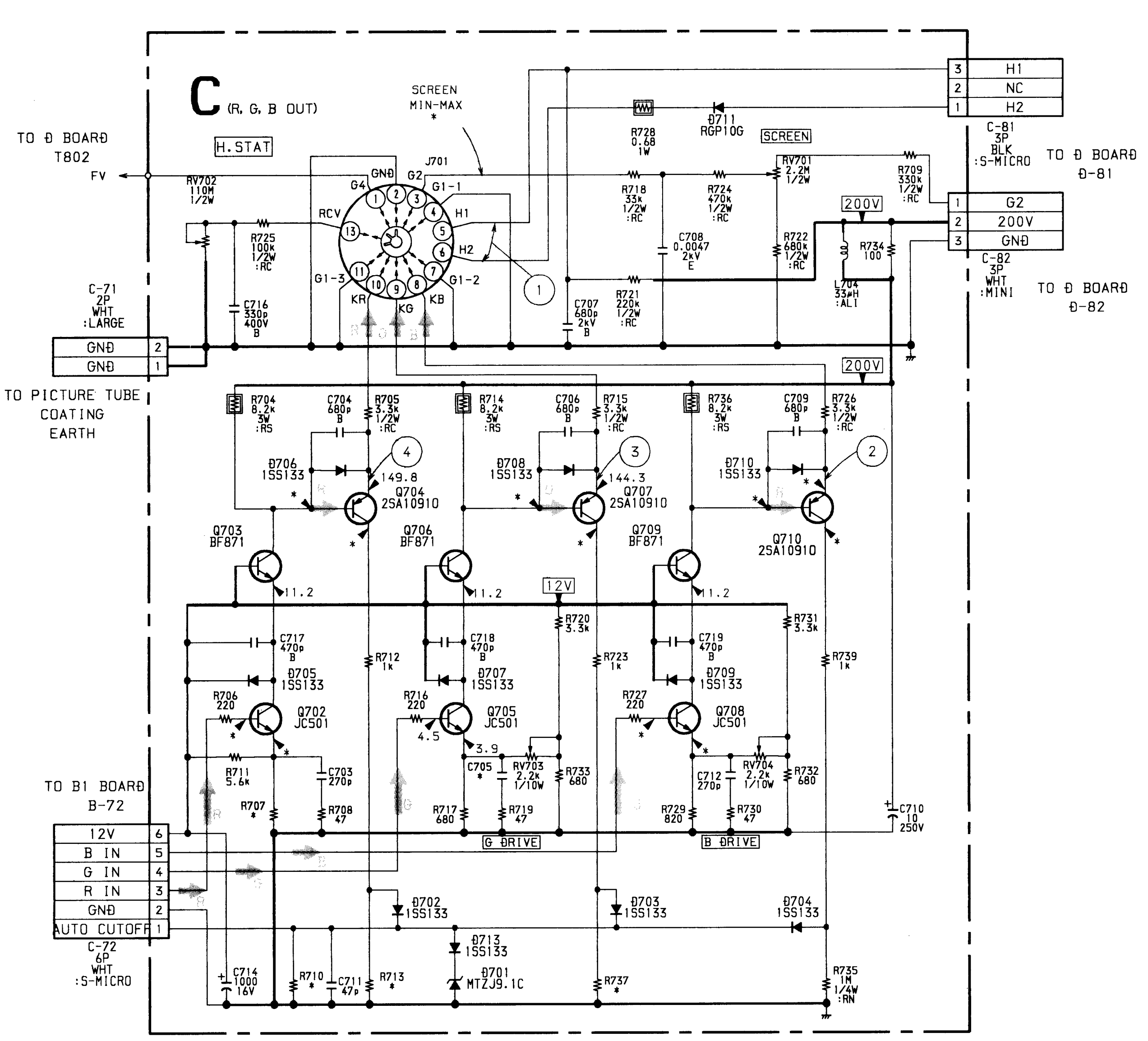
— B1 BOARD * MARK —

	KV-A2121D	KV-A2521D	KV-A2921D
B-73	OPEN	OPEN	3P
R343	220 1/10W	270 1/10W	1.2K 1/10W
R1308	0 1/10W	0 1/10W	4.7K 1/10W

— V Board —

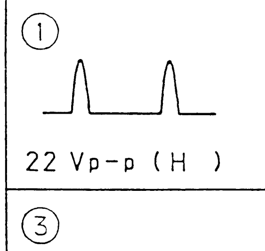
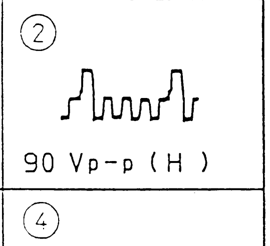
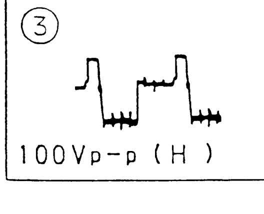
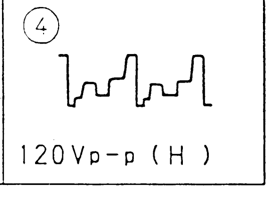

V (TEXT
CNV1 10P GRY :BTOB-S
GND
ST TV
VIDEO
GND
STBY
8V
GND
GND
14V
GND
TO D BOARD D-21
CNV2 10P GRY :BTOB-S
BLK
B
G
R
GND
TCLK
TDAT
GND
TV
PON
TO D BOARD D-22
IC2 SAA5246P/E
IC3 FCB61C65L-70P
IC1 SAD20162-B002
X1 27MHz
PS1 0.6A
D1 MA3056M
Q1 DTC114EK
Q2 2SD2096
Q3 2SC2412K
Q4 2SC2412K
Q5 MMST2907A
Q6 MMST2907A
Q7 MMST2907A
Q8 2SC2412K
D3 DAP202K
D4 DAN202K
D5 DAP202K
D6 DAN202K
D7 MA3036H
D9 MA3068M
X2

B-SS4172<


C (R, G, B OUT)
H.STAT
SCREEN MIN-MAX
J701
TO D BOARD T802
FV
RV702 110M 1/2W
C-71 2P WHT :LARGE
GND
GND
TO PICTURE TUBE COATING EARTH
H1
NC
H2
C-81 3P BLK :S-MICRO
TO D BOARD D-81
G2
200V
GND
C-82 3P WHT :MINI
TO D BOARD D-82
SCREEN
200V
12V
G DRIVE
B DRIVE
TO B1 BOARD B-72
12V
B IN
G IN
R IN
GND
AUTO CUTOFF
C-72 6P WHT :S-MICRO
Q702 JC501
Q703 BF871
Q704 2SA10910
Q705 JC501
Q706 BF871
Q707 2SA10910
Q708 JC501
Q709 BF871
Q710 2SA10910
D701 MTZJ9.1C
D711 RGP10G
①
②
③
④

B-¥SS4161<UK.>-C.. ,P1

— C Board —

 ① 22 Vp-p (H)	 ② 90 Vp-p (H)
 ③ 100Vp-p (H)	 ④ 120Vp-p (H)

— C Board —

As to the voltage value shown by the make ✱ on the Schematic Diagram, see the another list.

		KV-A2121D	KV-A2521D	KV-A2921D
Q702	B	3.8	4.2	
	E	3.2	3.6	
Q703	C	153.8	145.8	
Q704	B	153.8	145.8	
	C	4.7	5.3	
	E	149.8	138.9	
Q706	C	149.0	145.5	
Q707	B	149.0	145.5	
	C	4.9	6.0	
	E	144.3	141.6	
Q708	B	5.1	4.7	
	E	4.5	4.1	
Q709	C	151.0	131.5	
Q710	B	151.0	131.5	
	C	6.7	7.2	
	E	145.8	126.9	
SCREEN	MIN	170.9	201	
	MAX	907	926	

— V Board —

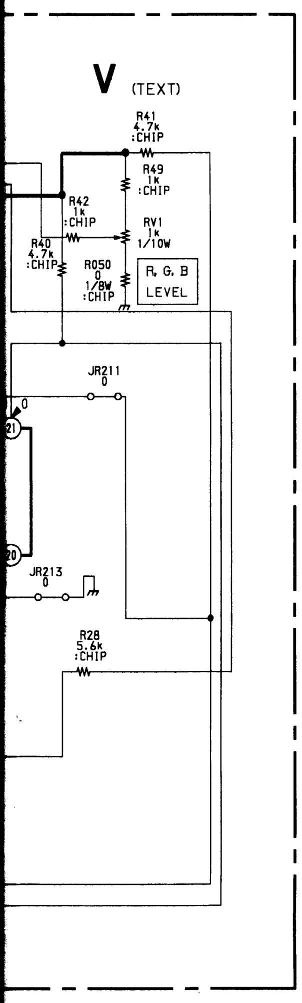
IC1	MAB8461P-W208	MICRO-CONT
IC2	SAA5246E	IVT
IC3	FCB61C65L-70P	STATIC-RAM
Q1	DTC114EK	STAND BY
Q2	2SD2096	5V REG
Q3	2SC2412K	SYNC BUFFER
Q4	2SC2412K	BLK OUT
Q5	MMST2907A	B OUT
Q6	MMST2907A	G OUT
Q7	MMST2907A	R OUT
Q8	2SC2412K	P ON SW
D1	MA3056M	5V REG
D3	DAP202K	PROTECT
D4	DAN202K	PROTECT
D5	DAP202K	PROTECT
D6	DAN202K	PROTECT
D7	MA3036H	PROTECT
D9	MA3068M	PROTECT

— C Board —

Q702	JC501	R DRIVE
Q703	BF871	R OUT
Q704	2SA10910	ACO MEASURING
Q705	JC501	G DRIVE
Q706	BF871	G OUT
Q707	2SA10910	ACO MEASURING
Q708	JC501	B DRIVE
Q709	BF871	B OUT
Q710	2SA10910	ACO MEASURING
D701	MTZJ9.1C	PROTECT
D702	1SS133	PROTECT
D703	1SS133	PROTECT
D704	1SS133	PROTECT
D705	1SS133	PROTECT
D706	1SS133	PROTECT
D707	1SS133	PROTECT
D708	1SS133	PROTECT
D709	1SS133	PROTECT
D710	1SS133	PROTECT
D711	RGP10G	HEATING VOLTAGE REC
D713	1SS133	PROTECT

— C BOARD ✱ MARK —

	KV-A2121D	KV-A2521D
C705	180P	220P
R707	430	390
R710	100K 1/4W 1%	68K 1/4W 1%
R713	160K 1/4W 1%	120K 1/4W 1%
R737	390K 1/4W 1%	820K 1/4W 1%


V
(TEXT)
R41
4.7k
:CHIP
R49
1k
:CHIP
R42
1k
:CHIP
RV1
1k
1/10W
R40
4.7k
:CHIP
R050
0
1/8W
:CHIP
R, G, B
LEVEL
JR211
0
0
21
20
JR213
0
R28
5.6k
:CHIP

B-SS4172<AEP>-V..

CONT
RAM
BY
UFFER
T
W
T
T
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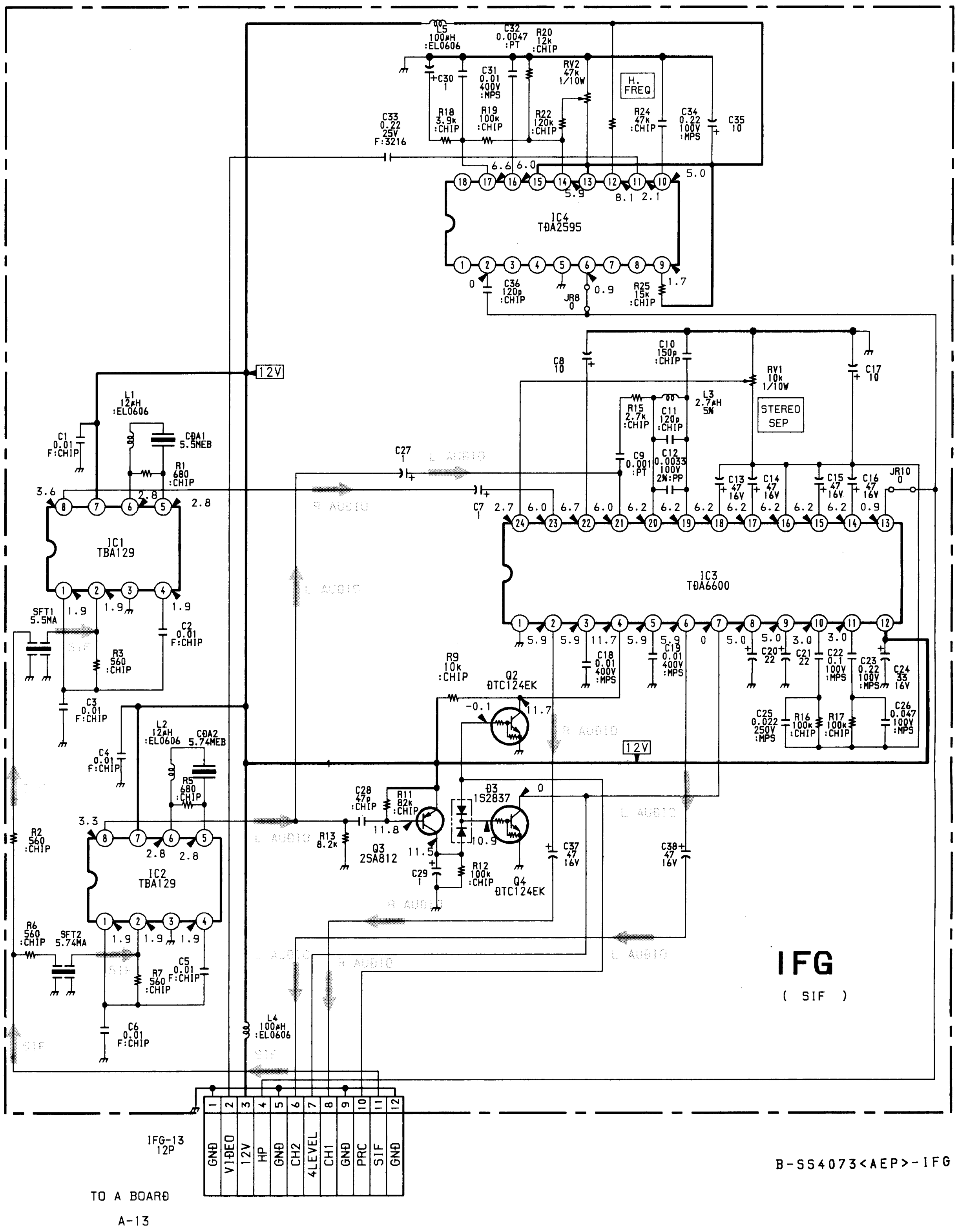
T
T
T

VE
EASURING
VE
EASURING
VE
EASURING
CT
CT
CT
CT
CT
CT
CT
CT
CT
CT
NG VOLTAGE REC
CT

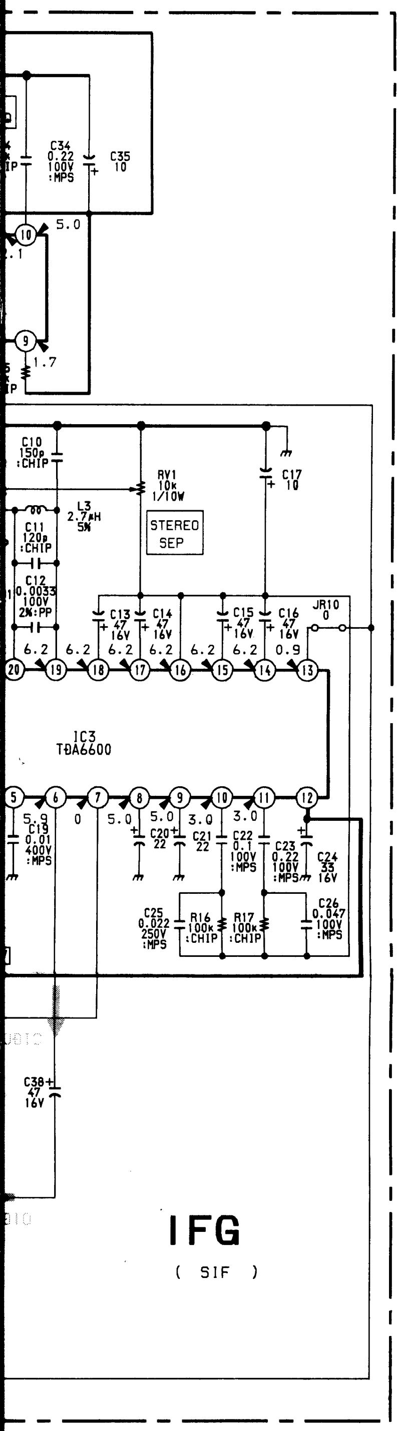
KV-A2521Đ	KV-A2921Đ
220P	220P
390	390
68K 1/4W 1%	68K 1/4W 1%
120K 1/4W 1%	120K 1/4W 1%
820K 1/4W 1%	470K 1/4W 1%


L5
100µH
:EL0606
C32
0.0047
:PT
R20
12k
:CHIP
+C30
1
C31
0.01
400V
:MPS
RV2
47k
1/10W
H.
FREQ
C33
0.22
25V
F:3216
R18
3.9k
:CHIP
R19
100k
:CHIP
R22
120k
:CHIP
R24
47k
:CHIP
C34
0.22
100V
:MPS
C35
10
6.6
6.0
5.9
8.1
2.1
5.0
IC4
TĐA2595
0
C36
120p
:CHIP
JR8
0
0.9
R25
15k
:CHIP
1.7
C10
150p
:CHIP
C8
10
RV1
10k
1/10W
C17
10
12V
L1
12µH
:EL0606
R15
2.7k
:CHIP
C11
120p
:CHIP
L3
2.7µH
5%
STEREO
SEP
C1
0.01
F:CHIP
CĐA1
5.5MEB
R1
680
:CHIP
C27
1
L AUDIO
C9
0.001
:PT
C12
0.0033
100V
2%:PP
C13
47
16V
C14
47
16V
C15
47
16V
C16
47
16V
JR10
0
3.6
2.8
2.8
R AUDIO
C7
1
2.7
6.0
6.7
6.0
6.2
6.2
6.2
6.2
6.2
6.2
6.2
0.9
IC1
TBA129
IC3
TĐA6600
SFT1
5.5MA
1.9
1.9
1.9
C2
0.01
F:CHIP
SIF
R3
560
:CHIP
5.9
5.9
11.7
5.9
5.9
0
5.0
5.0
3.0
3.0
C18
0.01
400V
:MPS
C19
0.01
400V
:MPS
C20
22
C21
22
C22
0.1
100V
:MPS
C23
0.22
100V
:MPS
C24
33
16V
R9
10k
:CHIP
Q2
ĐTC124EK
-0.1
11.7
C3
0.01
F:CHIP
L2
12µH
:EL0606
CĐA2
5.74MEB
C25
0.022
250V
:MPS
R16
100k
:CHIP
R17
100k
:CHIP
C26
0.047
100V
:MPS
R AUDIO
C4
0.01
F:CHIP
12V
R5
680
:CHIP
C28
47p
:CHIP
R11
82k
:CHIP
Đ3
1S2837
0
L AUDIO
R2
560
:CHIP
3.3
11.8
L AUDIO
R13
8.2k
10.9
C37
47
16V
C38
47
16V
2.8
2.8
Q3
2SA812
11.5
IC2
TBA129
C29
1
R12
100k
:CHIP
Q4
ĐTC124EK
R AUDIO
R6
560
:CHIP
SFT2
5.74MA
1.9
1.9
1.9
L AUDIO
R AUDIO
L AUDIO
IFG
(SIF)
R7
560
:CHIP
C5
0.01
F:CHIP
C6
0.01
F:CHIP
L4
100µH
:EL0606
SIF
SIF
1
2
3
4
5
6
7
8
9
10
11
12
GND
VIDEO
12V
HP
GND
CH2
4LEVEL
CH1
GND
PRC
SIF
GND
IFG-13
12P
TO A BOARD
A-13

B-SS4073<AEP>-IFG

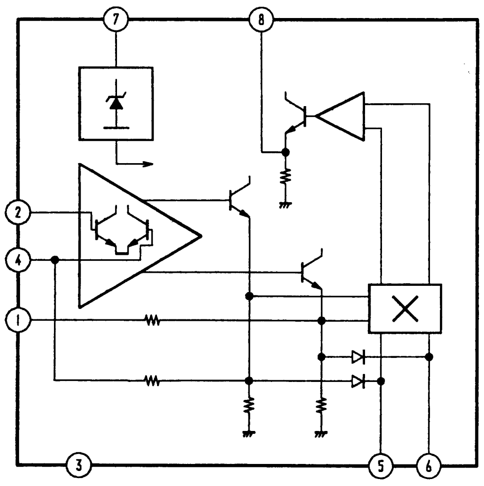
— IFG Board —

IC1	TBA129	5.5 ĐET
IC2	TBA129	5.74ĐET
IC3	TĐA6600	SIF ĐET AMP
IC4	TĐA2595	H.FREQ AMP
Q2	ĐTC124EK	SW
Q3	2SA812	SW
Q4	ĐTC124EK	SW
Đ3	1S2837	SW

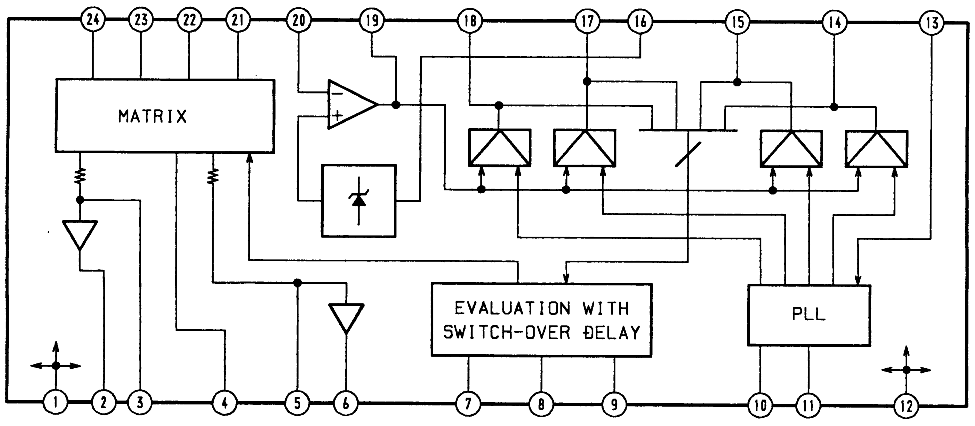

C34
0.22
100V
:MPS
C35
10
5.0
1.7
C10
150p
:CHIP
RV1
10k
1/10W
C17
10
L3
2.7μH
5N
STEREO
SEP
C11
120p
:CHIP
C12
0.0033
100V
2%:PP
C13
47
16V
C14
47
16V
C15
47
16V
C16
47
16V
JR10
0
6.2
6.2
6.2
6.2
6.2
6.2
0.9
IC3
TDA6600
5.9
0
5.0
5.0
3.0
3.0
C19
0.01
400V
:MPS
C20
22
C21
22
C22
0.1
100V
:MPS
C23
0.22
100V
:MPS
C24
33
16V
C25
0.022
250V
:MPS
R16
100k
:CHIP
R17
100k
:CHIP
C26
0.047
100V
:MPS
C38
47
16V
IFG
(SIF)

B-SS4073<AEP>-IFG

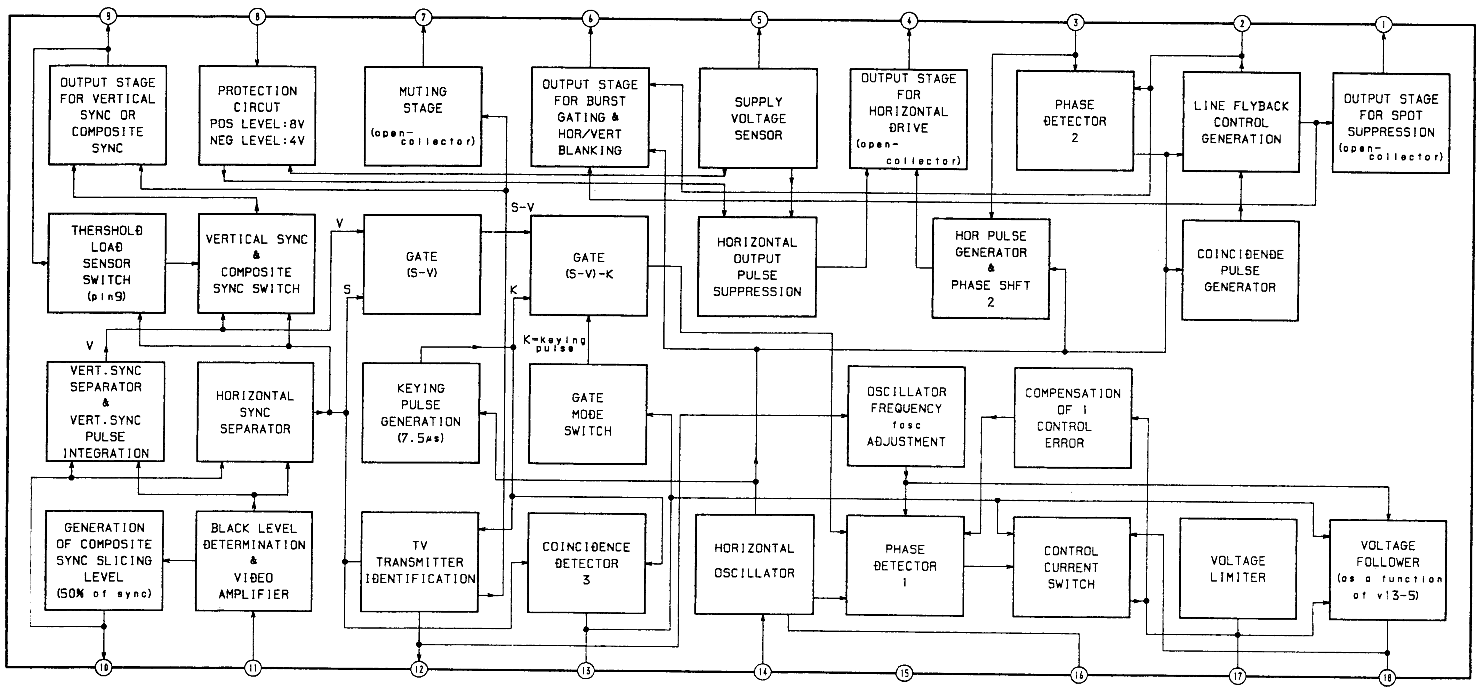
IFG BOARD IC1/IC2 TBA129



IFG BOARD IC3 TDA6600

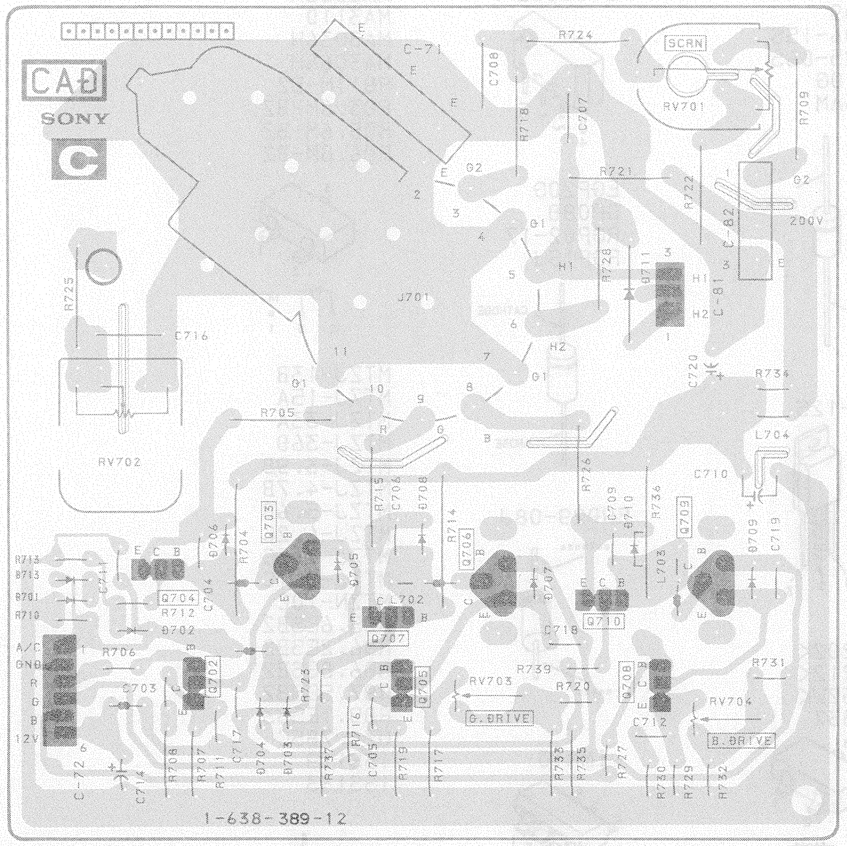

24
23
22
21
20
19
18
17
16
15
14
13
MATRIX
EVALUATION WITH
SWITCH-OVER DELAY
PLL
1
2
3
4
5
6
7
8
9
10
11
12

IFG BOARD IC4 TDA2595

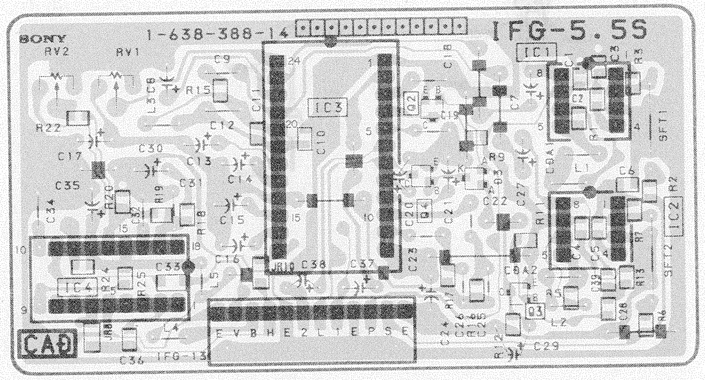

9
8
7
4
5
4
3
2
1
OUTPUT STAGE FOR VERTICAL SYNC OR COMPOSITE SYNC
PROTECTION CIRCUT POS LEVEL:8V NEG LEVEL:4V
MUTING STAGE (open-collector)
OUTPUT STAGE FOR BURST GATING & HOR/VERT BLANKING
SUPPLY VOLTAGE SENSOR
OUTPUT STAGE FOR HORIZONTAL DRIVE (open-collector)
PHASE DETECTOR 2
LINE FLYBACK CONTROL GENERATION
OUTPUT STAGE FOR SPOT SUPPRESSION (open-collector)
S-V
THERSHOLD LOAD SENSOR SWITCH (pin9)
VERTICAL SYNC & COMPOSITE SYNC SWITCH
V
GATE (S-V)
S
K
GATE (S-V)-K
HORIZONTAL OUTPUT PULSE SUPPRESSION
HOR PULSE GENERATOR & PHASE SHFT 2
COINCIDENCE PULSE GENERATOR
V
K-keying pulse
VERT.SYNC SEPARATOR & VERT.SYNC PULSE INTEGRATION
HORIZONTAL SYNC SEPARATOR
KEYING PULSE GENERATION (7.5μs)
GATE MODE SWITCH
OSCILLATOR FREQUENCY fosc ADJUSTMENT
COMPENSATION OF I CONTROL ERROR
GENERATION OF COMPOSITE SYNC SLICING LEVEL (50% of sync)
BLACK LEVEL DETERMINATION & VIDEO AMPLIFIER
TV TRANSMITTER IDENTIFICATION
COINCIDENCE DETECTOR 3
HORIZONTAL OSCILLATOR
PHASE DETECTOR 1
CONTROL CURRENT SWITCH
VOLTAGE LIMITER
VOLTAGE FOLLOWER (as a function of v13-5)
10
11
12
13
14
15
16
17
18

C [R·G·B OUT] IFG [SIF]

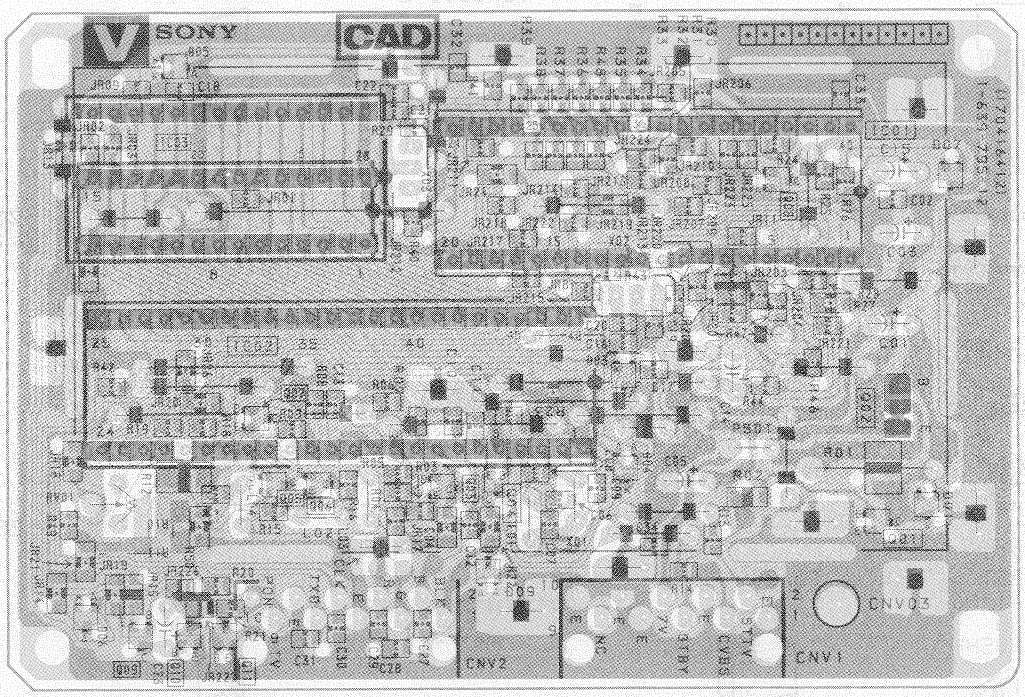
— C Board —


CAD
SONY
C
SCRN
RV701
RV702
J701
200V
G. DRIVE
B. DRIVE
A/C
GND
R
G
B
12V
1-638-389-12

— IFG Board —


SONY
1-638-388-14
IFG-5.5S
RV2
RV1
IC1
IC2
IC3
IC4
CAD
IFG-13

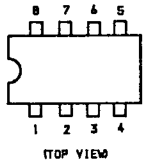
V [TELE TEXT]


V
SONY
CAD
1-639-795-12
IC01
IC02
IC03
CNV1
CNV2
CNV03
RV01

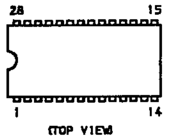
- ▨ : pattern from the side which enables seeing.
- ░ : pattern of the rear side.

5-4. SEMICONDUCTORS

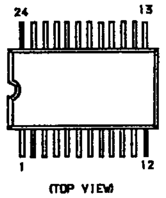
BA4558
NE5532P
RC4558P
SDA2546
TBA129
TDA1543
TEA2014A
TEA2031A


8 7 6 5
1 2 3 4
(TOP VIEW)

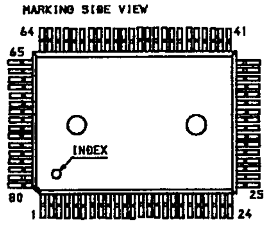
CXA1114P
CXK5864BP-10L
MAB8461P-W208
SAA5246P/E
SAA7280
TC5565APL-15L
TDA4580-V7
TDA6200
TEA2028B


28 15
1 14
(TOP VIEW)

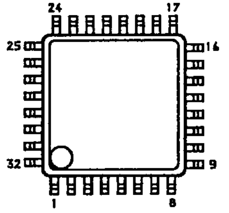
CXD1175AM


24 13
1 12
(TOP VIEW)

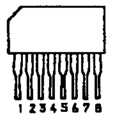
CXD2011Q


MARKING SIDE VIEW
64 41
65
INDEX
80
1 25
24

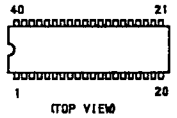
CXK1202Q


24 17
25 16
32 9
1 8

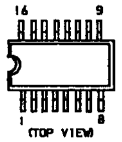
CX20061



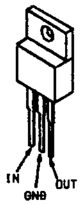
FCB61C65L-70P
SDA20560-A012


40 21
1 20
(TOP VIEW)

HCF4052BM

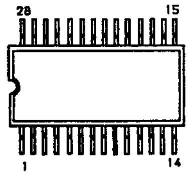

16 9
1 8
(TOP VIEW)

LM7812CT
MC7812CT
TDA8341/N6
TEA7605
µPC24M05HF

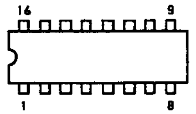


MB40968PF

(TOP VIEW)

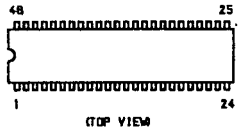


MC14051BCP
MC14053BCP
PC8574
TDA2545A-V4
TDA4660T
TDA8442N3
TEA2260
µPD4053BC

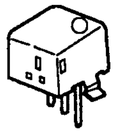


(TOP VIEW)

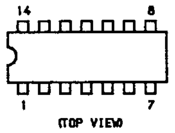
SAA5246P/E/M4A


48 25
1 24
(TOP VIEW)

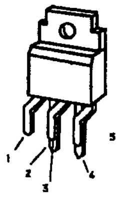
SBX1610-11



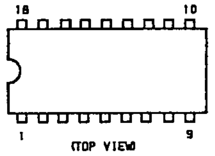
SN74LS02N


14 8
1 7
(TOP VIEW)

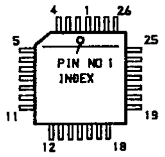
TDA2050



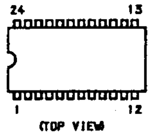
TDA2579/V9


18 10
1 9
(TOP VIEW)

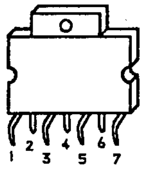
TDA4650WP


4 1 26
5 25
PIN NO 1
INDEX
11 19
12 18

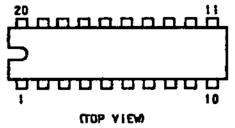
TDA6600-2


24 13
1 12
(TOP VIEW)

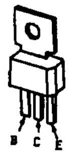
TDA8170



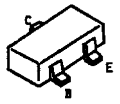
TDA8732


20 11
1 10
(TOP VIEW)

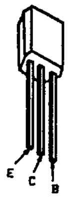
BF871



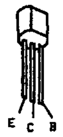
DTA144EK
DTC114EK
DTC124EK
DTC144EK
MMST2907A
2SA1037K
2SA1162
2SA812
2SB1295
2SC1623
2SC2412
2SC2712



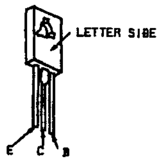
DTC144ES



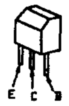
JC501
2SA1091



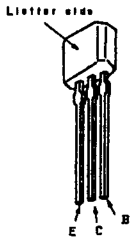
2SA1220A
2SB1357
2SC2688


LETTER SIDE
E C B

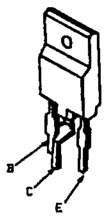
2SB734
2SD773
2SD774



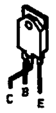
2SC2785


Letter side
E C B

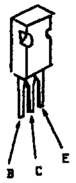
2SD1548



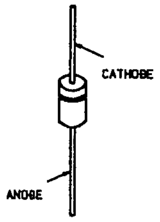
2SD1941



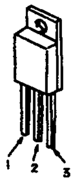
2SD2096



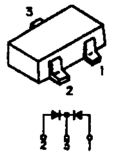
BR405B
BB809
ERC06-15S
ERC25-06S
RGP10G
RU-3AM


CATHODE
ANODE

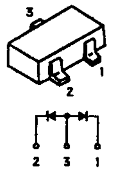
CTU-12S



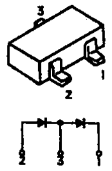
DAN202K
DAN212K
MA152WK
1S2837



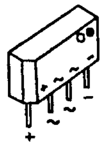
DAP202K



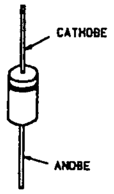
DA204K
1S226



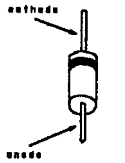
D4SB60L-F



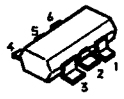
EGP20G
GP08D
RGP02-17
RGP15J


CATHODE
ANODE

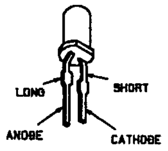
ERD29-08J


cathode
anode

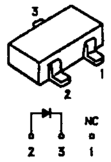
IMN10



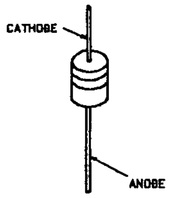
LD-201VR


LONG
SHORT
ANODE
CATHODE

MA3056M
MA3110
MA3036H
MA3068M
RD11M-B2
RD3.6M-B2
RD5.6M-B2
RD6.8M-B2



MTZJ-13B
MTZJ-15A
MTZJ-33A
MTZJ-36D
MTZJ-3.9B
MTZJ-4.7B
MTZJ-5.6B
MTZJ-6.2C
MTZJ-7.5C
MTZJ-9.1C
MTZN-10C
RD5.6ESB2
RD6.2ESB2
RD6.8ESB2
RD7.5ESB2
RD9.1ESB3
UZ4.7BSC
1SS119
1SS133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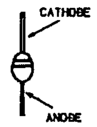
U05G


CATHODE
ANODE

6-1. CHASSIS

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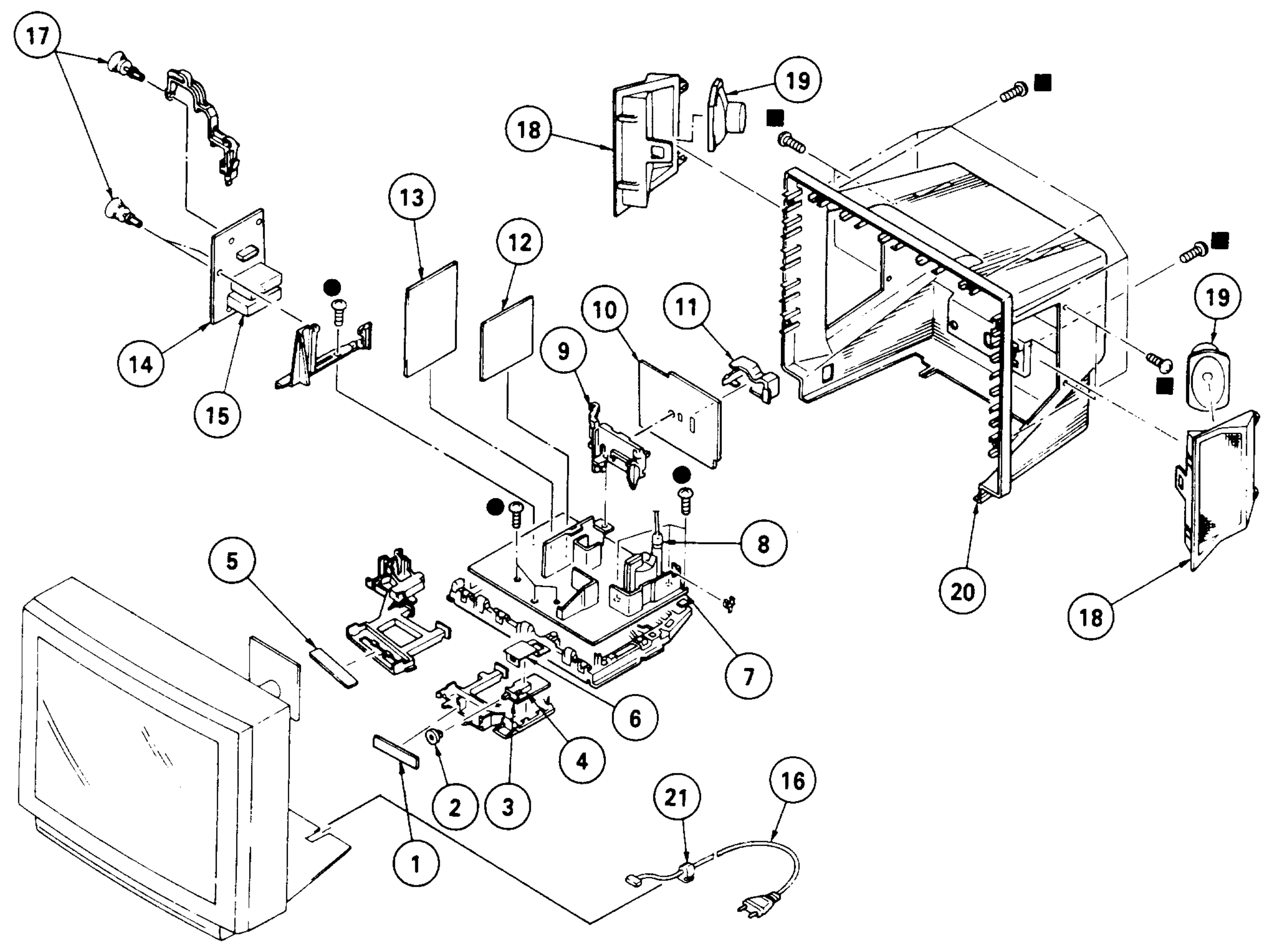
■ : BVTP4×16 7-685-663-79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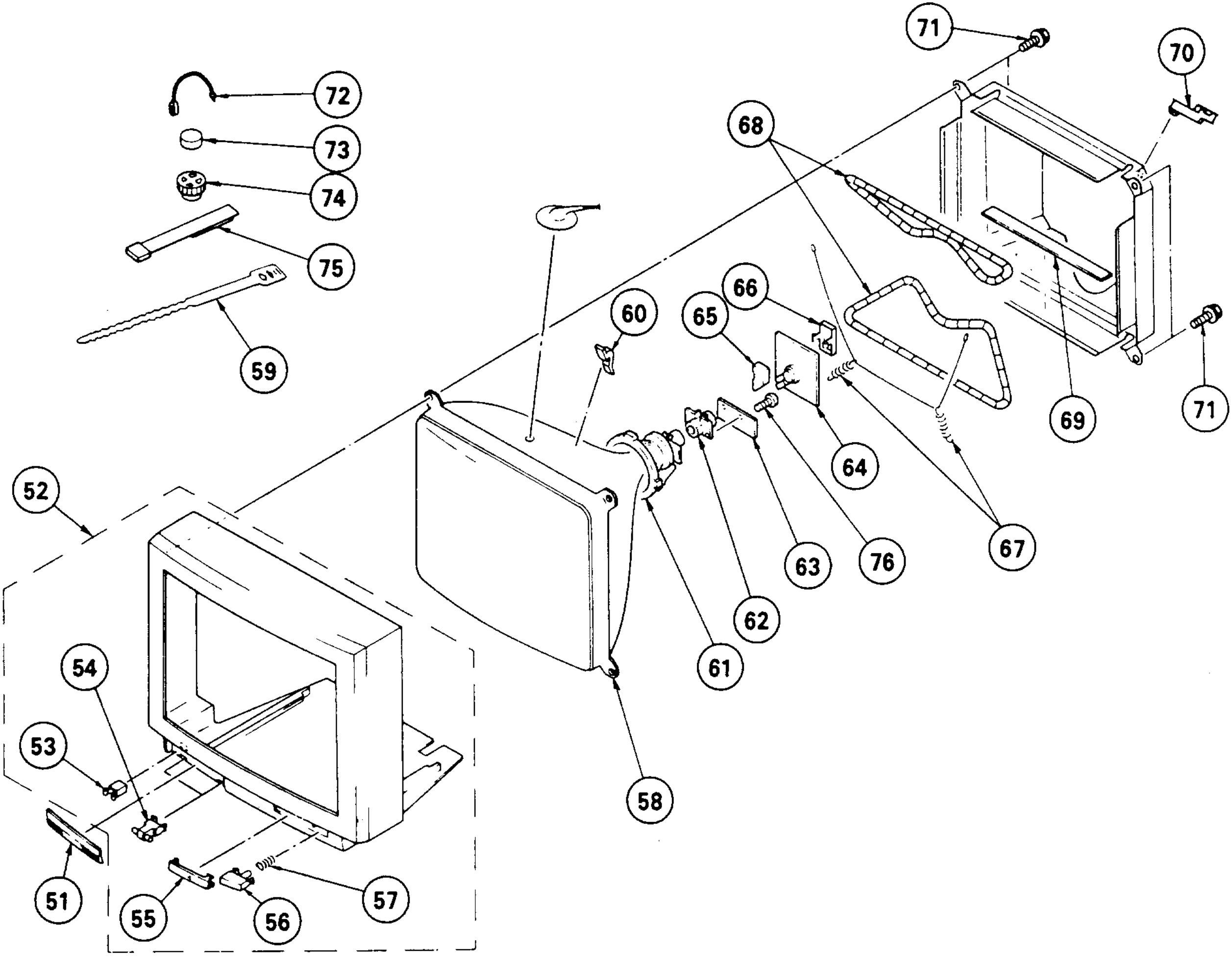
6-2. PICTURE TUBE



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